

Table 1, Quantum yields of photosensitized production of singlet oxygen.

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.1 2'-Acetonaphthone (2-ACN)									
	C ₆ H ₆	air or O ₂	0.71	0.81				See Table 4.	
	C ₆ H ₆	air ^a	0.73 ^T	0.87			CP/LI-56,42	S' = 9-Fluorenone; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 0.84$. $P_T^{O_2} = 1$; measured ratio of I_a at $\lambda_{exc}(S) = 336$ and $\lambda_{exc}(S') = 367$ nm.	91F023
	C ₆ H ₆	air	0.59 ^T	0.70			PL/LI,St-55,42	S' = Ac; rel. to $f_{\Delta}^T(S') = 1.0$; $\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.84^e$. $\epsilon_T(S) = 10,500$ L mol ⁻¹ cm ⁻¹ at 430 nm, $\epsilon_T(S') = 24,300$ L mol ⁻¹ cm ⁻¹ at 440 nm, $P_T^{O_2}(S$ and S') = 1.	84E373
	C ₆ H ₆	O ₂	0.73 ^T	0.87			PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.84$. Measured $\phi_{\Delta} = 0.73$, $P_T^{O_2} = 1$ and ϕ_F .	88E449
	C ₆ H ₆	O ₂	0.71 ^T	0.85			PL/LI-56,42	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 0.84$. Measured $P_T^{O_2} = 1$.	88E449
	C ₆ H ₆	O ₂	0.4 ^T	0.5			PR/Ad,St-49,42	A = DPBF; used $\phi_T(S) = 0.84$, $\epsilon_T(S) = 10,500$ L mol ⁻¹ cm ⁻¹ at 430 nm. Measured $G(^3S^*)$.	78E263
	CD ₃ OD	air ^a	0.79 ^T				CP/LI-56	S' = RB; rel. to $\phi_{\Delta}(S') = 0.76$. $P_T^{O_2} = 1$; meas. ratio of I_a at $\lambda_{exc}(S) = 336$ and $\lambda_{exc}(S') = 547$ nm.	91F023
	MeOH	O ₂	0.75 ^T				CP/Ac-15	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$.	767071
1.2 Acetophenone (AP)									
	C ₆ H ₆	air		0.35*			PL/LI,St-55,42	S' = BP; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm; used $\phi_T(S) = 1^e$.	86A230
			0.29 ^T	0.29					
	C ₆ H ₆	air ^a	0.41 ^T	0.41			PL/ β Cb-43,42	S' = BP; TD = S; rel. to $f_{\Delta}^T(S') = 0.35$; used $\phi_T(S) = 1$. Measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 1.2$.	76F904
	C ₆ H ₆	O ₂	0.33 ^T	0.33			PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 1$. Measured $\phi_{\Delta} = 0.31$, $P_T^{O_2} = 0.94$ and ϕ_F .	88E449
	C ₆ H ₆	O ₂	0.36 ^T	0.36			PL/LI-56,42	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 1$. Measured $P_T^{O_2} = 0.94$.	88E449
	C ₆ H ₆	O ₂		0.31*			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to $f_{\Delta}^T(S') = 0.39$; meas. $\phi_T(S) = 1^e$; $\lambda_{exc} = 337$ nm. Showed $P_T^{O_2}(S$ and S') > 0.95.	85A268
			0.35 ^T	0.35					
	CH ₃ CN	O ₂	0.52 ^T	0.52			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to $f_{\Delta}^T(S') = 0.37$; meas. $\phi_T(S) = 1^e$; $\lambda_{exc} = 337$ nm. Showed $P_T^{O_2}(S$ and S') > 0.95.	85A268
	MeOH	O ₂	<0.58				CP/Oc-14	A = 2,5-DMF; $\lambda_{exc} = 283-373$ nm. Some free radical reaction occurs.	70F735
1.3 Acetophenone, 4'-cyano-									
	C ₆ H ₆	O ₂		0.44*			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to $f_{\Delta}^T(S') = 0.39$; meas. $\phi_T(S) = 1^e$; $\lambda_{exc} = 337$ nm. Showed $P_T^{O_2}(S$ and S') > 0.95.	85A268
			0.49 ^T	0.49					
	CH ₃ CN	O ₂	0.76 ^T	0.76			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to $f_{\Delta}^T(S') = 0.37$; meas. $\phi_T(S) = 1^e$; $\lambda_{exc} = 337$ nm. Showed $P_T^{O_2}(S$ and S') > 0.95.	85A268
1.4 Acetophenone, 3'-methoxy-									
	C ₆ H ₆	air		0.33*			PL/LI,St-55	S' = BP; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm.	86A230
				0.27					
1.5 Acetophenone, 4'-methoxy-									
	C ₆ H ₆	O ₂		0.24*			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to $f_{\Delta}^T(S') = 0.39$; meas. $\phi_T(S) = 1^e$; $\lambda_{exc} = 337$ nm. Showed $P_T^{O_2}(S$ and S') > 0.95.	85A268
			0.27 ^T	0.27					
	CH ₃ CN	O ₂	0.42 ^T	0.42			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to $f_{\Delta}^T(S') = 0.37$; meas. $\phi_T(S) = 1^e$; $\lambda_{exc} = 337$ nm. Showed $P_T^{O_2}(S$ and S') > 0.95.	85A268

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No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.6 Acetophenone, 2'-methyl-, biradical									
	CH ₃ CN	air ^a		0.23 ^T	0.38		PL/LI-56	$S' = \text{Ac}$; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{\text{exc}} = 337 \text{ nm}$. f_{Δ}^T based on quantum yield of biradical formation = 0.60 in soln. contg. 0.012 mol L ⁻¹ 2-methylacetophenone.	89A241
1.7 Acridine (Ac)									
	C ₆ H ₆	air or O ₂	0.83	0.99				See Table 4.	
	C ₆ H ₆	O ₂	0.84 ^T	1			PL/Hp-52,42	$\lambda_{\text{exc}} = 355 \text{ nm}$; used $\phi_T(S) = 0.86^g$. Measured $\phi_{\Delta} = 0.84$, $P_T^{O_2} = 1$ and ϕ_F .	88E449
	C ₆ H ₆	O ₂	0.84 ^T	1			PL/LI-56,42	$S' = Pz$; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 0.86^g$. Measured $P_T^{O_2} = 1$.	88E449
	C ₆ H ₆	O ₂	0.6 ^T	0.7			PR/Ad,St-49,42	A = DPBF; used $\phi_T(S) = 0.86^g$, $\epsilon_T(S) = 24,300 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 440 nm. Measured $G(^3S^*)$.	78E263
	CDCl ₃	$\sim 1.16 \times 10^{-2}$	0.95 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; $\lambda_{\text{exc}} = 337 \text{ nm}$; used $\phi_T(AC) = 1$, $\epsilon_T(AC) = 7640 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 525 nm. $P_T^{O_2} = 1$; $p_A = 1$.	87E410
	CH ₃ CN	O ₂	0.82 ^T				PL/Hp-52	$\lambda_{\text{exc}} = 354 \text{ nm}$.	88Z155
1.8 9-Acridinethione, 10-methyl- (NMTA)									
	c-C ₆ H ₁₂	O ₂		1			PL/Ad,St-49,39	A = DPBF; AC = S; meas. $\phi_T(S) = 0.79$; $\lambda_{\text{exc}} = 485 \text{ nm}$; used $k_d = 5.0 \times 10^4 \text{ s}^{-1}$, $k_A = 3.4 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(S) = 8800 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 520 nm. Measured $P_T^{O_2}$.	84E342
	C ₆ H ₆	O ₂		0.92			PL/Ad,St-49,39	A = DPBF; AC = S; meas. $\phi_T(S) = 0.85$; $\lambda_{\text{exc}} = 485 \text{ nm}$; used $k_d = 4.0 \times 10^4 \text{ s}^{-1}$, $k_A = 8.0 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(S) = 9300 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 520 nm. Measured $P_T^{O_2}$.	84E342
	CH ₃ CN	O ₂		0.85			PL/Ad,St-49,39	A = DPBF; AC = S; meas. $\phi_T(S) = 0.76$; $\lambda_{\text{exc}} = 485 \text{ nm}$; used $k_d = 2.5 \times 10^4 \text{ s}^{-1}$, $k_A = 1.0 \times 10^9 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(S) = 9000 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 520 nm. Measured $P_T^{O_2}$.	84E342
	MeOH	O ₂		1.0			PL/Ad,St-49,39	A = DPBF; AC = S; meas. $\phi_T(S) = 0.75$; $\lambda_{\text{exc}} = 485 \text{ nm}$; used $k_d = 1.0 \times 10^5 \text{ s}^{-1}$, $k_A = 8.1 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(S) = 8500 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 520 nm. Measured $P_T^{O_2}$.	84E342
1.9 Acridinium, 3,6-diamino- (Proflavine)									
	H ₂ O	air ^a	0.12	0.25			CP/Ac-43,42	$S' = \text{MB}^+$; A = 2,5-DMF; rel. to $\phi_{\Delta}(S') = 0.52$; used $\phi_T(S) = 0.47$. Assumed $P_T^{O_2} = 1$.	737339
1.10 Acridinium, 3,6-diamino-10-methyl- (Acriflavine)									
	CH ₃ COCH ₃	air ^a		0.1			MP/LI-56	$S' = \text{Ph a}$; rel. to $\phi_{\Delta}(S') = 0.8$. Rel. to S' in CCl ₄ .	82Z317
1.11 Allopsoralen (Furo[2,3-f]benzopyran-7-one)									
	C ₆ H ₆	O ₂	0.08*				PL/LI-56,42	$S' = \text{Ac}$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.17$; $\lambda_{\text{exc}} = 355 \text{ nm}$. $P_T^{O_2} = 1$.	88E121
			0.07 ^T	0.41					
1.12 Angelicin (Furo[2,3-h]benzopyran-2-one, Ang)									
	C ₆ H ₆	O ₂	0.01 ^T	0.33			PL/LI-56,42	$S' = \text{Ac}$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.03$; $\lambda_{\text{exc}} = 355 \text{ nm}$. $P_T^{O_2} = 1$.	88E121
	CCl ₄	air	0.002*				MP/LI-56	$S' = \text{TPP}$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{\text{exc}} = 652 \text{ nm}$.	83E813
	D ₂ O	air	0.02 ^T				PL/LI-56	$S' = \text{RF}$; rel. to $\phi_{\Delta}(S') = 0.3$; $\lambda_{\text{exc}} = 337 \text{ nm}$.	86E959 86F144
	MeOH	air	0.03 ^T	1			PL/LI-56,42	$S' = \text{RF}$; rel. to $\phi_{\Delta}(S') = 0.4$; $\lambda_{\text{exc}} = 337 \text{ nm}$; used $\phi_T(S) = 0.31^d$.	86E959 86F144

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No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.13 Anthracene (An)									
	iso-BuOH	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.32$	87E668
	1-BuOH	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.26$	87E668
	(C ₂ H ₅) ₂ O	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.35$	87E668
	i-C ₅ H ₁₁ OH	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.38$	87E668
	n-C ₆ H ₁₄	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.68$	87E668
	C ₆ H ₅ CH ₃	0.2 atm O ₂	0.83				PL/LI-38,56	used $\phi_T(S) = 0.72$. Assumed $f_T^{O_2} = 1$; used $f_{\Delta}^T = 1.0$ and $f_{\Delta}^S = 0.46$.	87E668
	C ₆ H ₅ CH ₃	O ₂	1.0				PL/LI-38,56	used $\phi_T(S) = 0.72$. Assumed $f_T^{O_2} = 1$; used $f_{\Delta}^T = 1.0$ and $f_{\Delta}^S = 0.46$.	87E668
	C ₆ H ₅ CH ₃	1.2 × 10 ⁻³				1.0	PL/Ad,St-48	A = Rub; $\lambda_{\text{exc}} = 347 \text{ nm}$; used $\phi_I(S) = 0.72$, $\epsilon_T(O_2) = 42,000 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 428.5 nm. $P_T^{O_2} = 1$; $n_{\Delta} = 1$.	83F075
	C ₆ H ₅ CN	1.2 × 10 ⁻³				0.57	PL/Ad,St-48	A = Rub; $\lambda_{\text{exc}} = 347 \text{ nm}$; used $\phi_T(S) = 0.72$. $P_T^{O_2} = 1$; used $\epsilon_T(S) = 24,000 \text{ L mol}^{-1} \text{ cm}^{-1}$ at λ_{max} ; $n_{\Delta} = 0.57$.	83F075
	C ₆ H ₅ Cl	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.95$	87E668
	C ₆ H ₆	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.85$	87E668
	C ₆ H ₆	1.3 × 10 ⁻⁴	0.58 ^T	0.77			PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; $\lambda_{\text{exc}} = 355 \text{ nm}$; used $\phi_T(S) = 0.75$. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
	C ₆ H ₆	air	~0.74				PL/Hp-52,42	$\lambda_{\text{exc}} = 337 \text{ nm}$. Measured ϕ_T ; assumed $P_T^{O_2} = 1$, [S] > 5 × 10 ⁻⁴ mol L ⁻¹ , used $\phi_F = 0.22$; $\phi_{\Delta} = 0.50$ extrapolating [S] → 0; authors used meas. ϕ_T to give $f_{\Delta}^T = 0.95$ but $P_S^{O_2} \neq 0$.	91F198
	C ₆ H ₆	air	0.61				PL/Hp-52	$\lambda_{\text{exc}} = 355 \text{ nm}$. Assumed $f_{\Delta}^S = 0$; $\phi_T^{O_2} = 0.78$ gives $f_{\Delta}^T = 0.78$.	85E591
	C ₆ H ₆	air ^a	0.63				PL/βCb-43	S' = BP; rel. to $\phi_{\Delta}(S') = 0.35$. Measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 1.8$; since $P_S^{O_2} \neq 0$, only ϕ_{Δ} is obtainable.	76F904
	C ₆ H ₆	1.9 × 10 ⁻³	0.88				CP/Ac-46	S' = A = DMA; rel. to $\phi_{\Delta}(S') = 0.52$; $\lambda_{\text{exc}} = 365 \text{ nm}$. Assumed $f_T^{O_2} = 1$.	81F364
	C ₆ H ₆	O ₂	0.68				PL/Hp-52	$\lambda_{\text{exc}} = 355 \text{ nm}$; used $\phi_T(S) = 0.78$. Measured $\phi_{\Delta} = 0.68$, $P_T^{O_2} = 1$ and $\phi_T^{O_2} = \phi_T(S)$ and ϕ_F . Authors assume $f_{\Delta}^S = 0$ and $f_{\Delta}^T = 0.87$ but $P_S^{O_2} = 0.52$ so values of f_{Δ}^S and f_{Δ}^T are indeterminable.	88E449
	C ₆ H ₆	O ₂	0.63				PL/LI-56	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$. Measured $P_T^{O_2} = 1$ and $\phi_T^{O_2} \approx \phi_T(S)$. Authors assume $f_{\Delta}^S = 0$ and $f_{\Delta}^T = 0.87$ but $P_S^{O_2} = 0.52$ so values of f_{Δ}^S and f_{Δ}^T are indeterminable.	88E449
	C ₆ H ₆	O ₂		0.7			PR/Ad,St-49	A = DPBF; used $\phi_T(S) = 0.75$, $\epsilon_T(S) = 45,500 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 432 nm. Measured $G(^3S^*)$.	78E263
	C ₆ H ₆	9.0 × 10 ⁻³	1.1	1.0	0.46		CP/Ac-46,38	S' = A = DMA; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{\text{exc}} = 365 \text{ nm}$; used $\phi_T(S) = 0.74$. Assumed $f_T^{O_2} = 1$; $\phi_{\Delta}(S') = 1$ through coronene using $\phi_{\Delta}(\text{ave.}) = 0.88$.	81F364
	n-C ₇ H ₁₆	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.63$	87E668
	CCl ₄	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.075$	87E668
	CCl ₄	air	0.13*				MP/LI-56	S' = TPP; rel. to $\phi_{\Delta}(S') = 0.7$.	86E959
	CCl ₄	O ₂	0.75				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365 \text{ nm}$.	537004
	CH ₂ Cl ₂	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.37$	87E668
	CH ₃ CN	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.27$	87E668
	CH ₃ COCH ₃	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.45$	87E668

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1.13 Anthracene (An)—Continued									
	CHCl ₃	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.62$	87E668
	CHCl ₃	O ₂	0.69				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CS ₂	O ₂	0.70				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	DMF	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.36$	87E668
	EtOH	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.26$	87E668
	HCONH ₂	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.20$	87E668
	MeOH	air	0.7				PL/LI-56	S' = RF; rel. to $\phi_{\Delta}(S') = 0.4$.	86E959
	1-PrOH	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.3$	87E668
	2-PrOH	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.32$	87E668
	c-C ₄ H ₈ O	0.2 atm O ₂					PL/LI-56	$\phi_{\Delta}(\tau_r(\text{toluene})/\tau_r) = 0.44$	87E668
1.14 Anthracene, 1-chloro-									
	CCl ₄	O ₂	0.45				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CHCl ₃	O ₂	0.66				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CS ₂	O ₂	0.64				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
1.15 Anthracene, 9-chloro-									
	CCl ₄	O ₂	0.63				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CHCl ₃	O ₂	0.56				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CS ₂	O ₂	0.57				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
1.16 Anthracene, 9-cyano-									
	C ₆ H ₆ and CH ₃ CN	air and O ₂	~2 ST	~1	~1		CP/Pa-14	$\lambda_{\text{exc}} = 365$ nm. A = TME, 2M2B, or cyclohexene, P = alkene hydroperoxides, solvent = C ₆ H ₆ and CH ₃ CN.	85F160
1.17 Anthracene, 9,10-dibromo-									
	C ₆ H ₆	air	-0.85	-0.96			PL/Hp-52,42	$\lambda_{\text{exc}} = 337, 400$ nm. Measured ϕ_T ; [S] > 5 × 10 ⁻⁴ mol L ⁻¹ , assumed $P_T^{O_2} = 1$, used $\phi_F = 0.11$; $\phi_{\Delta} = 0.44$, $f_{\Delta}^T = 0.49$ extrapolating [S] → 0.	91F198
1.18 Anthracene, 9,10-dichloro-									
	CCl ₄	O ₂	0.89				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CHCl ₃	O ₂	1.6				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
	CS ₂	O ₂	2.0				CP/Oc-14	A = S; $\lambda_{\text{exc}} = 365$ nm.	537004
1.19 Anthracene, 9,10-dicyano- (DCA)									
	c-C ₆ H ₁₂	→ ∞	1.9 ST				PL/LI-56	S' = Py; rel. to $\phi_{\Delta}(S') = 0.81$; $\lambda_{\text{exc}} = 355$ nm.	91E297
	C ₆ H ₆	air	0.19				CP/LI-56	S' = TPP; rel. to $\phi_{\Delta}(S') = 0.67$.	89E223
									88E609
	C ₆ H ₆	air	0.48				CP/Ac-14	A = MDH. $f_r^A = 0.30$.	89E223
	C ₆ H ₆	1.45 × 10 ⁻³	0.28				CP/Ac-14,38	A = 2M2P. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0$.	83F172
	C ₆ H ₆	6.8 × 10 ⁻³	0.82			1.7	CP/Ac-14,38	A = 2M2P; $\lambda_{\text{exc}} = 334, 366$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0$.	83F172
	C ₆ H ₆	→ ∞	1.6 ST	0.70	0.86		PL/LI-56,38	S' = Ac; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{\text{exc}} = 355$ nm. Used $P_T^{O_2} = 1$; f_{Δ}^T was measured using 2,5-dimethyliodobenzene enhanced intersystem crossing producing ³ S* with 50% efficiency.	92F013
	C ₆ D ₆	1.45 × 10 ⁻³	0.46				PL/LI-38,56	S' = DNT; rel. to $\phi_{\Delta}(S') = 0.98$; $\lambda_{\text{exc}} = 355$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0$, $f_T^{O_2} = 1$.	83F172
	C ₆ D ₆	6.8 × 10 ⁻³	1.1			1.6	PL/LI-38,56	S' = DNT; rel. to $\phi_{\Delta}(S') = 0.98$; $\lambda_{\text{exc}} = 355$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0$, $f_T^{O_2} = 1$.	83F172

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.19 Anthracene, 9,10-dicyano- (DCA)—Continued									
	C ₆ H ₆ and CH ₃ CN	air and O ₂	-2 ST	-1	-1		CP/Pa-14	$\lambda_{exc} = 365$ nm. A = TME, 2M2B, or cyclohexene, P = alkene hydroperoxides, solvent = C ₆ H ₆ and CH ₃ CN.	85F160
	CCl ₄	air	0.15*	0.13			CP/LI-56	S' = TPP; A = MDH; rel. to $\phi_{\Delta}(S') = 0.54$.	89E223
	CCl ₄	air	0.16				CP/Ac-14	A = MDH. $f_r^A = 0.30$.	89E223
	CCl ₄	O ₂	2 ST				CP/Pa-14	A = DPB. $P_T^{O_2} = 1$.	90F292
	CH ₃ CN	air	0.23				CP/LI-56	S' = TPP; A = MDH; rel. to $\phi_{\Delta}(S') = 0.50$.	89E223
	CH ₃ CN	air	0.76				CP/Ac-14	A = MDH. $f_r^A = 0.30$.	89E223
	CH ₃ CN	1.7 × 10 ⁻³	0.06				CP/Ac-14,38	Δ = 2M2P; $\lambda_{exc} = 334, 366$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0$.	83F172
	CH ₃ CN	8.1 × 10 ⁻³	0.25		2.0		CP/Ac-14,38	A = 2M2P; $\lambda_{exc} = 334, 366$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0$.	83F172
	CH ₃ CN	→ ∞	1.5 ST		0.76		PL/LI-56	S' = Ac; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 355$ nm. Assumed $f_{\Delta}^T = 0.7, f_T^{O_2} = 1$.	92F013
	CD ₃ CN	1.7 × 10 ⁻³	0.90				PL/LI-38,56	S' = DNT; rel. to $\phi_{\Delta}(S') = 0.62$; $\lambda_{exc} = 355$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0, f_T^{O_2} = 1$.	83F172
	CD ₃ CN	8.1 × 10 ⁻³	1.6		2.0		PL/LI-38,56	S' = DNT; rel. to $\phi_{\Delta}(S') = 0.62$; $\lambda_{exc} = 355$ nm. Used $P_T^{O_2} = 1$, assumed $\phi_T = 0, f_T^{O_2} = 1$.	83F172
	CHCl ₃	air	0.16				CP/Ac-14	A = MDH. $f_r^A = 0.30$.	89E223
	CHCl ₃	air	0.09				CP/LI-56	S' = TPP; A = MDH; rel. to $\phi_{\Delta}(S') = 0.50$.	89E223
	CS ₂	air	0.09				CP/LI-56	S' = TPP; A = MDH; rel. to $\phi_{\Delta}(S') = 0.51$.	89E223
	CS ₂	air	0.17				CP/Ac-14	A = MDH. $f_r^A = 0.30$.	89E223
	ClCF ₂ CCl ₂ F	air	0.14				CP/Ac-14	A = MDH. $f_r^A = 0.30$.	89E223
	ClCF ₂ CCl ₂ F	air	0.09				CP/LI-56	S' = TPP; A = MDH; rel. to $\phi_{\Delta}(S') = 0.41$.	89E223
1.20 Anthracene, 1,4-dimethoxy-9,10-diphenyl-									
	(C ₆ H ₅) ₂ O	(2-9) × 10 ⁻³			0.69	CP/Ac-14,38	A = S. Assumed $f_T^{O_2} = 1, \phi_f_{\Delta}^T \approx 0$.	84F197	
	CH ₃ CO ₂ C ₂ H ₅	(2-9) × 10 ⁻³			0.69	CP/Ac-14,38	A = S. Assumed $f_T^{O_2} = 1, \phi_f_{\Delta}^T = 0.08$.	84F197	
1.21 Anthracene, 9,10-dimethyl- (DMA)									
	C ₅ H ₅ N	O ₂	0.19				CP/Oc-14	A = H ₂ NCSNH ₂ ; $\lambda_{exc} = 405$ nm. Assumed $f_r^A = 2$.	737347 74E522
	n-C ₆ H ₁₄	O ₂	1.1	≥0.42	≥0.41		CP/Ac-27	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$; used $p_A = 1$.	79E643
	C ₆ H ₅ CH ₃	(2-9) × 10 ⁻³			2.0	CP/Ac-14,38	A = S. Assumed $f_T^{O_2} = 1, \phi_f_{\Delta}^T = 0.05$.	84F197	
	C ₆ H ₆	air ^a	0.08 ^T	1	1	2.0	CP/Ac-14,40	A = S. Assumed $f_T^{O_2} = 1; f_{\Delta}^T + f_{\Delta}^S$ from ϕ_{Δ} when $P_S^{O_2} = 1$; $\phi_f_{\Delta}^T = \phi_{\Delta}$ when $P_S^{O_2} = 0$.	76F422
	C ₆ H ₆	air ^a			≥0.62	≥1.6	CP/Ac-14,38	A = S. Assumed $f_{\Delta}^T = 1$ and $f_T^{O_2} = 1$.	76F905
	C ₆ H ₆	O ₂ var.					CP/Ac-14,38	A = S; $\lambda_{exc} = 365$ nm. $\phi_f_{\Delta}^T / (f_{\Delta}^T + f_{\Delta}^S) = 0.02 \pm 0.05$.	68F286
	C ₆ H ₆	1.9 × 10 ⁻³	0.52				CP/Ac-14	A = S; $\lambda_{exc} = 365$ nm. Assumed $f_T^{O_2} = 1$; measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.56, 0.59$ and 0.91 for S' = Cor, An and BP, resp.	81F364
	C ₆ H ₆	9.0 × 10 ⁻³	1.0			1.4	CP/Ac-14	A = S; $\lambda_{exc} = 365$ nm; used $\phi_T(S) = -0.02$. Assumed $f_T^{O_2} = 1$; measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 1.1, 0.91$ and 1.1 for S' = Cor, An and BP, resp.	81F364
1.22 Anthracene, 2-(3,3-dimethyl-1-butenyl)-, (E)-									
	C ₆ H ₆	1.3 × 10 ⁻⁴	0.46*	0.38 ^T	0.76		PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.46$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.23	Anthracene, 2-(3,3-dimethyl-1-butenyl)-, (Z)- C ₆ H ₆	1.3×10^{-4}	0.63* 0.52 ^T	0.88			PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.59$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
1.24	Anthracene, 9-(1,1-dimethylethyl)- H ₂ O (mic) pH = 7	air ^a					CP/Pa-43	S' = An; A = Im; P = Imidazole endoperoxide; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.06$. soln. cont. 1% CTAB, RNO as monitor of P.	83N082
1.25	Anthracene, 9,10-diphenyl- n-C ₆ H ₁₄	O ₂	1.1	≥ 0.49	≥ 0.48		CP/Ac-27	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$; used $p_A = 1$.	79E643
	C ₆ H ₅ CH ₃	$(2\text{-}9) \times 10^{-3}$			0.8		CP/Ac-14,38	A = S. Assumed $f_T^{O_2} = 1$, $\phi_T f_{\Delta}^T = 0.08$.	84F197
	C ₆ H ₅ CH ₃	$(2\text{-}9) \times 10^{-3}$	2 ST	1	1	2	PL/Ad/St-48	A = Rub; AC = S; $\lambda_{exc} = 347$ nm; used $k_d = 3.2 \times 10^4$ s ⁻¹ , $k_A = 2.5 \times 10^7$ L mol ⁻¹ s ⁻¹ , $\epsilon_T(AC) = 12,000$ L mol ⁻¹ cm ⁻¹ at 450 nm. $P_T^{O_2} = 1$; measured $n_A = 2$, thus $f_T^{O_2} = 1$.	82E451
	C ₆ H ₆	air	0.13 ^T	1			CP/Ac-14,40	A = S; $\lambda_{exc} = 436$ nm. $P_S^{O_2} = 0$; measured $\phi_T f_{\Delta}^T = 0.13$.	727196
	C ₆ H ₆	air ^a	1 ST				CP/Pa-14,38	A = S; $\lambda_{exc} = 436$ nm. $P_S^{O_2} = 1$, measured $f_{\Delta}^T + f_{\Delta} S f_T^{O_2} = 1$.	727196
	CCl ₄	O ₂	0.75				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
	CHCl ₃	O ₂	0.69				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
	CS ₂	O ₂	1.8				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
1.26	Anthracene, 9-methyl- n-C ₆ H ₁₄	O ₂	0.97	≥ 0.32	≥ 0.19		CP/Ac-27	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$; used $p_A = 1$.	79E643
	CCl ₄	O ₂	1.3				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
	CHCl ₃	O ₂	1.2				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
1.27	Anthracene, 2-[2-(2-naphthyl)ethenyl]-, (E)- C ₆ H ₆	1.3×10^{-4}	0.13* 0.11 ^T	0.92			PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.12$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
1.28	Anthracene, 2-[2-(2-naphthyl)ethenyl]-, (Z)- C ₆ H ₆	1.3×10^{-4}	0.12* 0.10 ^T	0.45			PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.22$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
1.29	Anthracene, 9-phenyl- n-C ₆ H ₁₄	O ₂	1.1	≥ 0.50	≥ 0.42		CP/Ac-27	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$; used $p_A = 1$.	79E643
	CCl ₄	O ₂	0.85				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
	CHCl ₃	O ₂	0.94				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
	CS ₂	O ₂	0.91				CP/Oc-14	A = S; $\lambda_{exc} = 365$ nm.	537004
1.30	Anthracene, 2-(2-phenylethenyl)-, (Z)- C ₆ H ₆	1.3×10^{-4}	0.10* 0.08 ^T	0.47			PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.17$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
1.31	Anthracene, 2-(2-phenylethenyl)-, (E)- C ₆ H ₆	1.3×10^{-4}	0.12* 0.10 ^T	0.91			PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.11$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.32	Anthracene, 2-(1-propenyl)-, (E)-								
	C ₆ H ₆	1.3 × 10 ⁻⁴	0.50*	0.41 ^T	0.89		PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.46$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
1.33	Anthracene, 2,6,9,10-tetracyano-								
	C ₆ H ₆ and CH ₃ CN	air and O ₂	~2 ST	~1	~1		CP/Pa-14	$\lambda_{exc} = 365$ nm. A = TME, 2M2B, or cyclohexene, P = alkene hydroperoxides, solvent = C ₆ H ₆ and CH ₃ CN.	85F160
1.34	Anthracene, 2-vinyl-								
	C ₆ H ₆	1.3 × 10 ⁻⁴	0.43*	0.36 ^T	0.73		PL/LI-56,42	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; meas. $\phi_T(S) = 0.49$; $\lambda_{exc} = 355$ nm. $P_S^{O_2} < 0.02$ and $P_T^{O_2} > 0.99$.	88E452
1.35	1-Anthracesulfonate ion								
	H ₂ O	3 × 10 ⁻³	0.70	~1			CP/Ac-14	A = S. Assumed $P_T^{O_2} = 1$ and $f_{\Delta}^S = 0$; $\phi_T(\text{calc.}) = 0.82$, $T = 30^\circ\text{C}$.	78A275
1.36	2-Anthracesulfonate ion								
	H ₂ O	3 × 10 ⁻³	0.70	~1			CP/Ac-14	A = S. Assumed $P_T^{O_2} = 1$ and $f_{\Delta}^S = 0$; $\phi_T(\text{calc.}) = 0.81$, $T = 30^\circ\text{C}$.	78A275
1.37	Anthra[1,9-bc:4,10-b'c']dichromene (ADC)								
	C ₆ H ₅ CH ₃	(2-9) × 10 ⁻³			0.8		CP/Ac-14,38	A = S. Assumed $f_T^{O_2} = 1$, $\phi_T f_{\Delta}^T = 0.01$.	84F197
1.38	Anthra[2,1,0-def:6,5,10-d'e'f']diisoquinoline, N,N'-dimethyl-								
	D ₂ O	O ₂	0.08				PL/LI-56	S' = ZnTMPyP ⁴⁺ ; rel. to $\phi_{\Delta}(S') = 0.88$; meas. $\phi_T(S) = 0.12$; $\lambda_{exc} = 355$ nm.	91R201
1.39	9,10-Anthaquinone								
	C ₆ H ₆	O ₂	0.15 ^T	0.17			PL/LI-56,42	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 0.90$. Measured $P_T^{O_2} = 0.65$.	88E449
	C ₆ H ₆	O ₂	0.26 ^T	0.29			PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.90$. Measured $\phi_{\Delta} = 0.17$, $P_T^{O_2} = 0.65$ and ϕ_T .	88E449
	CHCl ₃	air ^a	0.01 ^T				PL/LI-56	S' = MPDME; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.40	9,10-Anthaquinone, 1-amino-								
	CHCl ₃	air ^a	0.2 ^T				PL/LI-56	S' = MPDME; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	2-PrOH/ H ₂ O (5:1)	air	0.19 ^T				CP/Ac-43	S' = 1,5-AQ(NH ₂) ₂ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{exc} = 434$ nm.	88F582
1.41	9,10-Anthaquinone, 2-amino-								
	CHCl ₃	air ^a	0.02 ^T				PL/LI-56	S' = MPDME; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	2-PrOH/ H ₂ O (5:1)	air	0.02 ^T				CP/Ac-43	S' = 1,5-AQ(NH ₂) ₂ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{exc} = 434$ nm.	88F582
1.42	9,10-Anthaquinone, 1-amino-2-hydroxy-								
	CHCl ₃	air ^a	0.02 ^T				PL/LI-56	S' = MPDME; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.43	9,10-Anthaquinone, 1-amino-4-hydroxy-								
	CHCl ₃	air ^a	0.02 ^T				PL/LI-56	S' = MPDME; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	MeOH	O ₂	0.004 ^T				CP/Ac-43	S' = RB; A = Bu ₂ S; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{exc} = 546$ nm. Measured $P_T^{O_2} = 1$.	80F304
	2-PrOH/ H ₂ O (5:1)	air	0.02 ^T				CP/Ac-43	S' = 1,5-AQ(NH ₂) ₂ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{exc} = 545$ nm.	88F582
1.44	9,10-Anthaquinone, 1-amino-4-hydroxy-2-phenoxy-								
	CHCl ₃	air ^a	0.05 ^T				PL/LI-56	S' = MPDME; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.44 9,10-Anthraquinone, 1-amino-4-hydroxy-2-phenoxy —Continued									
	CHCl ₃	air ^a		0.05 ^T			PL/LI-56	$S' = \text{MPDEE}$; rel. to $\phi_{\Delta}(S') = 0.77$. $P_T^{O_2} = 1$.	82F631
	EtOH	air ^a		0.05 ^T			CP/Oc-43	$S' = \text{MPDEE}$; A = H ₂ NCSNH ₂ ; rel. to $\phi_{\Delta}(S') = 0.77$. Assumed $P_T^{O_2} = 1$, $P_S^{O_2} = 0$.	82F631
1.45 9,10-Anthraquinone, 1-amino-4-hydroxy-2-[4-(phenylaminosulfonyl)phenoxy] —									
	CHCl ₃	air ^a		0.04 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	CHCl ₃	air ^a		0.04 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77$. $P_T^{O_2} = 1$.	82F631
	EtOH	air ^a		0.05 ^T			CP/Oc-43	$S' = \text{MPDME}$; A = H ₂ NCSNH ₂ ; rel. to $\phi_{\Delta}(S') = 0.77$. Assumed $P_T^{O_2} = 1$, $P_S^{O_2} = 0$.	82F631
1.46 9,10-Anthraquinone, 1-amino-2-methyl-									
	CCl ₄	air		0.12 ^T			MP/LI-56	$S' = \text{TPBC}$; rel. to $\phi_{\Delta}(S') = 0.45$.	82A384
	CHCl ₃	air ^a		0.12 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.47 9,10-Anthraquinone, 1-chloro-									
	CHCl ₃	air ^a		0			PL/LI-56	$S' = \text{MPDME}$. $P_T^{O_2} = 1$.	86E640
1.48 9,10-Anthraquinone, 2-chloro-									
	CHCl ₃	air ^a		0			PL/LI-56	$S' = \text{MPDME}$. $P_T^{O_2} = 1$.	86E640
1.49 9,10-Anthraquinone, 1,2-diamino-									
	CHCl ₃	air ^a		0.03 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	CHCl ₃	air		<0.05			CP/Pa-14	A = DMA; P = 9,10-Dimethylanthracene endoperoxide; $\lambda_{\text{exc}} = 435$ nm. $P_T^{O_2} = 1$.	80E446
	2-PrOH/H ₂ O (5:1)	air		0.04 ^T			CP/Ac-43	$S' = 1,5\text{-AQ(NH}_2\text{)}_2$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{\text{exc}} = 545$ nm.	88F582
1.50 9,10-Anthraquinone, 1,4-diamino-									
	CCl ₄	air		0.04 ^T			MP/LI-56	$S' = \text{TPBC}$; rel. to $\phi_{\Delta}(S') = 0.45$.	82A384
	CHCl ₃	air ^a		0.01 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	CHCl ₃	air		<0.05			CP/Pa-14	A = DMA; P = 9,10-Dimethylanthracene endoperoxide; $\lambda_{\text{exc}} = 435$ nm. $P_T^{O_2} = 1$.	80E446
	2-PrOH/H ₂ O (5:1)	air		0.03 ^T			CP/Ac-43	$S' = 1,5\text{-AQ(NH}_2\text{)}_2$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{\text{exc}} = 545$ nm.	88F582
1.51 9,10-Anthraquinone, 1,5-diamino-									
	CHCl ₃	air ^a		0.46 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	CHCl ₃	air		0.67 ^T			CP/Pa-14	A = DMA; P = 9,10-Dimethylanthracene endoperoxide; $\lambda_{\text{exc}} = 435$ nm. $P_T^{O_2} = 1$.	80E446
	2-PrOH/H ₂ O (5:1)	air		0.80 ^T			CP/Ac-14	A = DPBF; $\lambda_{\text{exc}} = 434$ nm.	88F582
1.52 9,10-Anthraquinone, 1,8-diamino-									
	CHCl ₃	air ^a		0.35 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	CHCl ₃	air		0.77 ^T			CP/Pa-14	A = DMA; P = 9,10-Dimethylanthracene endoperoxide; $\lambda_{\text{exc}} = 435$ nm. $P_T^{O_2} = 1$.	80E446
	2-PrOH/H ₂ O (5:1)	air		0.58 ^T			CP/Ac-43	$S' = 1,5\text{-AQ(NH}_2\text{)}_2$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{\text{exc}} = 545$ nm.	88F582
1.53 9,10-Anthraquinone, 2,6-diamino-									
	2-PrOH/H ₂ O (5:1)	air		0.05 ^T			CP/Ac-43	$S' = 1,5\text{-AQ(NH}_2\text{)}_2$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{\text{exc}} = 434$ nm.	88F582
1.54 9,10-Anthraquinone, 1,5-diamino-2-bromo-4,8-dihydroxy-									
	CHCl ₃	air ^a		0.35 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	CHCl ₃	air ^a		0.15 ^T			PL/LI-56	$S' = \text{MPDEE}$; rel. to $\phi_{\Delta}(S') = 0.77$. $P_T^{O_2} = 1$.	82F631

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.54 9,10-Anthraquinone, 1,5-diamino-2-bromo-4,8-dihydroxy —Continued									
	CCl ₄	air		0.20 ^T			MP/LI-56	$S' = \text{TPBC}$; rel. to $\phi_{\Delta}(S') = 0.45$.	82A384
	EtOH	air ^a		0.16 ^T			CP/Oc-43	$S' = \text{MPDEE}$; A = H ₂ NCSNH ₂ ; rel. to $\phi_{\Delta}(S') = 0.77$. Assumed $P_T^{O_2} = 1$, $P_S^{O_2} = 0$.	82F631
1.55 9,10-Anthraquinone, 1,5-diamino-4,8-dihydroxy									
	CHCl ₃	air ^a		0.38 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.56 9,10-Anthraquinone, 1,8-diamino-4,5-dihydroxy									
	CHCl ₃	air ^a		0.58 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
	EtOH	air		0.28 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	91F197
	MeOH	air		0.18 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	91F197
1.57 9,10-Anthraquinone, 2,5-diamino-1,8-dihydroxy									
	EtOH	air		0.12 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	91F197
	MeOH	air		0.08 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	91F197
1.58 9,10-Anthraquinone, 2,7-diamino-1,8-dihydroxy									
	EtOH	air		0.08 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	91F197
	MeOH	air		0.07 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	91F197
1.59 9,10-Anthraquinone, 1,4-diamino-2-methoxy									
	CHCl ₃	air ^a		0.01 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$	86E640
	2-PrOH/ H ₂ O (5:1)	air		0.05 ^T			CP/Ac-43	$S' = 1,5\text{-AQ(NH}_2)_2$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{\text{exc}} = 545$ nm.	88F582
1.60 9,10-Anthraquinone, 1,4-diamino-2-[4-(phenylaminosulfonyl)phenoxy]									
	CHCl ₃	air ^a		0.01 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.61 9,10-Anthraquinone, 1,2-dihydroxy									
	CHCl ₃	air ^a		0.01 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.62 9,10-Anthraquinone, 1,8-dihydroxy									
	C ₅ H ₅ N	O ₂ var.		0.84 ^T			CP/Oc-14	A = α -Terpinene.	587004
	CH ₃ CN	air		0.70 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	90D185
	DMSO	air		0			CP/LI-56	$S' = \text{RB}$. No detectable phosphorescence.	90D185
	EtOH	air		0.43 ^T			CP/LI-56	$S' = \text{RB}$; rel. to $\phi_{\Delta}(S') = 0.80^b$.	90D185
1.63 9,10-Anthraquinone, 1-hydroxy									
	CHCl ₃	air ^a		0.2 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.64 9,10-Anthraquinone, 2-hydroxy									
	CHCl ₃	air ^a		0.03 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.77^b$. $P_T^{O_2} = 1$.	86E640
1.65 9,10-Anthraquinone, 1,4,5,8-tetraamino									
	2-PrOH/ H ₂ O (5:1)	air		0.10 ^T			CP/Ac-43	$S' = 1,5\text{-AQ(NH}_2)_2$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.80$; $\lambda_{\text{exc}} = 545$ nm.	88F582
1.66 9,10-Anthraquinone, 1,4,5,8-tetrahydroxy									
	CHCl ₃	air ^a		0.92 ^T			PL/LI-56	$S' = \text{MPDME}$; rel. to $\phi_{\Delta}(S') = 0.80^b$. $P_T^{O_2} = 1$.	86E640
1.67 Anthrone									
	C ₆ H ₆	O ₂		0.25 ^T	0.25		PL/LI-56,42	$S' = \text{Pz}$; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 1$. Measured $P_T^{O_2} = 1$.	88E449
	C ₆ H ₆	O ₂		0.25 ^T	0.25		PL/Hp-52,42	$\lambda_{\text{exc}} = 355$ nm; used $\phi_T(S) = 1$. Measured $\phi_{\Delta} = 0.25$, $P_T^{O_2} = 1$ and ϕ_F .	88E449

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.68 Anthrone, 1,8-dihydroxy- (Anthralin)									
	C ₆ H ₆	air	<0.01				PL/LI-56	S' = Np; rel. to ϕ _Δ (S') ~ 0.55; λ _{exc} = 355 nm. P _T ^{O₂} > 0.94; no detectable luminescence.	89E158
	C ₆ H ₆	air		0.77*	0.64		PR/βCb-59	S' = BP; TA = Car; rel. to f _Δ ^T (S') = 0.29; used ε _T (S) = 4770 L mol ⁻¹ cm ⁻¹ at 560 nm, ε _T (S') = 7630 L mol ⁻¹ cm ⁻¹ at 532.5 nm. P _T ^{O₂} > 0.94.	89E158
	DMSO	air	0				CP/LI-56	S' = RB. No detectable phosphorescence.	90D185
	EtOH	air	0				CP/LI-56	S' = RB. No detectable phosphorescence.	90D185
	CH ₃ CN	air	0				CP/LI-56	S' = RB. HCl added; no detectable phosphorescence.	90D185
1.69 Anthrone, 1,8-dihydroxy-, conjugate base									
	CH ₃ CN	air	≥0.11				CP/LI-56	S' = RB; rel. to ϕ _Δ (S') = 0.80 ^b . 15% quenching of singlet oxygen by S.	90D185
1.70 Azulene									
	C ₆ H ₆	air ^a		0	0		CP/Ac-14,38	λ _{exc} = 546.1 nm. A = DMA and DMBA.	69F388
1.71 Benzaldehyde									
	MeOH	O ₂	0.61				CP/Oc-14	A = TME; λ _{exc} = 283-373 nm.	70F735
	MeOH	O ₂	<0.58				CP/Oc-14	A = 2,5-DMF; λ _{exc} = 283-373 nm. Some free radical reaction occurs.	70F735
1.72 Benz[a]anthracene									
	C ₆ H ₅ CH ₃	1.2 × 10 ⁻³			0.95		PL/Ad,St-48	A = Rub; meas. ϕ _T (S) = 0.85; λ _{exc} = 347 nm. P _T ^{O₂} = 1; used ε _T (S) = 15,000 L mol ⁻¹ cm ⁻¹ at λ _{max} ; n _Δ = 0.95.	83F075
	C ₆ H ₅ CH ₃	1.2 × 10 ⁻³	1.4				PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0; λ _{exc} = 347 nm.	82E010
	C ₆ H ₅ CN	1.2 × 10 ⁻³			0.21		PL/Ad,St-48	A = Rub; meas. ϕ _T (S) = 0.75; λ _{exc} = 347 nm. P _T ^{O₂} = 1; used ε _T (S) = 12,000 L mol ⁻¹ cm ⁻¹ at λ _{max} ; n _Δ = 0.21.	83F075
1.73 Benz[a]anthracene, 9,10-dimethyl-									
	C ₆ H ₆	air ^a	0.69 ^T	1.0		1.0	CP/Ac-14,40	A = S. Assumed f _T ^{O₂} = 1; f _Δ ^T + f _Δ ^S from ϕ _Δ when P _S ^{O₂} = 1; ϕ _T f _Δ ^T = ϕ _Δ when P _S ^{O₂} = 0.	767422
	C ₆ H ₆	air ^a			≤0.34	≤1.3	CP/Ac-14,38	A = S. Assumed f _Δ ^T = 1 and f _T ^{O₂} = 1.	76F905
	C ₆ H ₆	O ₂ var.					CP/Ac-14,38	A = S; λ _{exc} = 365 nm. ϕ _T f _Δ ^T / (f _Δ ^T + f _Δ ^S) = 0.66.	68F286
1.74 Benzene, 5-chloro-1,3-dimethoxy-									
	D ₂ O	air	0.0092				PL/LI-56	S' = RB; rel. to ϕ _Δ (S') = 0.78; λ _{exc} = 308 nm.	91A341
1.75 Benzene, 1,3,5-triphenyl-									
	n-C ₆ H ₁₄	air	0.4 ^T				PL/Ad-43	S' = An; A = DPBF; rel. to ϕ _Δ (S') = 1; λ _{exc} = 264 nm. P _T ^{O₂} = 1.	82E258
1.76 Benzenebutanoic acid, α-amino-2-(formylamino)-γ-oxo- (N-Formylkynurenone)									
	H ₂ O pH = 7.4	air	0.17				CP/Pa-43	S' = RB; A = Im; rel. to ϕ _Δ (S') = 0.76; λ _{exc} = 332 nm. RNO as monitor of P.	91R141
	H ₂ O pH = 7.5	0.15 × 10 ⁻³	0.15	0.75			CP/Ac-14,42	A = TrpH; meas. ϕ _T (S) = 0.20 ^f ; λ _{exc} = >320 nm. P _S ^{O₂} = 0; with k _d = k _Δ + k _S [S].	78A358
	H ₂ O pH = 7.5	2 × 10 ⁻³	0.17	0.85			CP/Ac-14,42	A = TrpH; meas. ϕ _T (S) = 0.20 ^f ; λ _{exc} = >320 nm. P _S ^{O₂} = 0; in presence of Type I photooxidation; with k _d = k _Δ + k _S [S].	78A358
1.77 Benzenebutanoic acid, α,2-diamino-3-hydroxy-γ-oxo- (3-Hydroxykynurenone)									
	D ₂ O pD = 7	air	0.003				PL/LI-56	S' = RF; rel. to ϕ _Δ (S') = 0.30; λ _{exc} = 337 nm.	87F290

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.77 Benzenebutanoic acid, α,2-diamino-3-hydroxy-γ-oxo- (3-Hydroxykynurenone)—Continued									
	H ₂ O pH = 7.4	air	0				CP/Pa-43	$S' = RB$; A = Im; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 360$ nm. RNO as monitor of P.	91R141
1.78 Benzenebutanoic acid, α,2-diamino-γ-oxo- (Kynurenone)									
	D ₂ O pD = 7	air	0.006				PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.30$.	87F290
	H ₂ O pH = 7.4	air	0				CP/Pa-43	$S' = RB$; A = Im; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 360$ nm. RNO as monitor of P.	91R141
1.79 1,3-Benzenediol (Resorcinol)									
	diox	air	0.12				PL/LI-56	$S' = ZnTPP$; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 308$ nm.	91A341
1.80 1,3-Benzenediol, 4-chloro-									
	diox	O ₂	0.05				PL/LI-56	$S' = ZnTPP$; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 308$ nm.	91A341
1.81 1,4-Benzenediol (Hydroquinone)									
	diox	air	0.21				PL/LI-56	$S' = ZnTPP$; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 308$ nm. May be from quinone contaminants.	91A341
1.82 1,4-Benzenediol, chloro-									
	diox	O ₂	0.04				PL/LI-56	$S' = ZnTPP$; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 308$ nm. May be from quinone contaminants.	91A341
1.83 Benzil									
	C ₆ H ₆	O ₂	0.57	0.62			CP/Pa-14.42	A = 1,2-Dimethylcyclohexene: $\lambda_{exc} = 366$ nm; used $\phi_T(S) = 0.92^d$. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylidenedecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.84 Benzil, 4,4'-dichloro-									
	C ₆ H ₆	O ₂	0.23				CP/Pa-14	A = 1,2-Dimethylcyclohexene; $\lambda_{exc} = 366$ nm. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylidenedecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.85 Benzil, 4,4'-dimethoxy-									
	C ₆ H ₆	O ₂	0.27				CP/Pa-14	A = 1,2-Dimethylcyclohexene; $\lambda_{exc} = 366$ nm. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylidenedecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.86 Benzil, 2,2',4,4',6,6'-hexamethyl-									
	C ₆ H ₆	O ₂	0.06				CP/Pa-14	A = 1,2-Dimethylcyclohexene; $\lambda_{exc} = 366$ nm. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylidenedecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.87 Benzo[1,2,3-kl:4,5,6-k'l']dixanthene (BDX)									
	C ₆ H ₅ CH ₃	air			1.9		CP/Ac-14,38	A = S. Assumed $f_T^{O_2} = 1$, $\phi_{\Delta}^{f_T^T} = 0.08$.	84F197
1.88 Benzophenone (BP)									
	C ₆ D ₆	air	0.29 ^T	0.29			PL/LI-56,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 1$. S' = BP in benzene, used $\phi_{\Delta}(S')$ in benzene = 0.29.	88E657
	C ₆ H ₆	air or O ₂	0.35	0.35				See Table 4.	

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.88 Benzophenone (BP)—Continued									
C ₆ H ₆	air		0.36 ^T	~0.37			PL/Hp-52,42	λ _{exc} = 337 nm. Measured Φ _T , assumed P _T ^{O₂} = 1.	91F198
C ₆ H ₆	air		0.31 ^T	0.31			PL/LI-57,42	S' = Pz; rel. to Φ _Δ (S') = 0.83; used Φ _T (S) = 1.0. P _T ^{O₂} = 1.	90A328
C ₆ H ₆	air		0.33*	0.29 ^T	0.29		PL/LI-60,42	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 0.55; λ _{exc} = 355 nm; used Φ _T (S) = 1 ^c .	87E234
C ₆ H ₆	air		0.29 ^T	0.29			PL/LI,St-55,42	S' = Ac; rel. to f _Δ ^T (S') = 1.0; λ _{exc} = 355 nm; used Φ _T (S) = 1 ^c ; ε _T (S) = 7630 L mol ⁻¹ cm ⁻¹ at 532 nm. Used ε _T (S') = 24,300 L mol ⁻¹ cm ⁻¹ at 440 nm, P _T ^{O₂} (S) = 0.96, P _T ^{O₂} (S') = 1.	84E373
C ₆ H ₆	1.9 × 10 ⁻³		0.54				CP/Ac-46	A = DMA; λ _{exc} = 365 nm. Assumed f _T ^{O₂} = 1; measured Φ _Δ (S)/Φ _Δ (S') = 1.1, 1.6 and 1.8 for S' = DMA, Rub and DPBF, resp.; solvent may contain impurities.	81F364
C ₆ H ₆	O ₂		0.35 ^T	0.35			PL/Hp-52,42	λ _{exc} = 355 nm; used Φ _T (S) = 1. Measured Φ _Δ = 0.35, P _T ^{O₂} = 1 and Φ _F .	88E449
C ₆ H ₆	O ₂		0.35 ^T	0.35			PL/LI-56,42	S' = Pz; rel. to Φ _Δ (S') = 0.83; used Φ _T (S) = 1. Measured P _T ^{O₂} = 1.	88E449
C ₆ H ₆	O ₂		0.39 ^T	0.39			PL/Ad-49,42	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	84F005
C ₆ H ₆	9.0 × 10 ⁻³		0.90	1	0		CP/Ac-46	A = DMA; λ _{exc} = 365 nm; used Φ _T (S) = 1.0. Assumed f _T ^{O₂} = 1; measured Φ _Δ (S)/Φ _Δ (S') = 0.90, 1.0 and 1.13 for S' = DMA, Rub and DPBF, resp.; solvent may contain impurities.	81F364
C ₆ H ₆	O ₂		0.4 ^T	0.4			PR/Ad,St-49,42	A = DPBF; used Φ _T (S) = 1.0, ε _T (S) = 7630 L mol ⁻¹ cm ⁻¹ at 532 nm. Measured G(³ S*).	78E263
CDCl ₃	~1.16 × 10 ⁻²		0.55 ^T	0.55			PL/Ad,St-49,42	A = DPBF; AC = S; λ _{exc} = 337 nm; used Φ _T (S) = 1 ^f , ε _T (S) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. P _A = 1.	87E410
CH ₃ CN	O ₂		0.37 ^T	0.37			PL/Ad,St-49,42	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 2.5 × 10 ⁴ s ⁻¹ , k _A = 1.0 × 10 ⁹ L mol ⁻¹ s ⁻¹ , Φ _T (S) = 1 ^d , ε _T (AC) = 6500 L mol ⁻¹ cm ⁻¹ at 520 nm. Showed P _T ^{O₂} (S and S') > 0.95.	85A268
MeOH	O ₂		<0.50				CP/Oc-14	A = 2,5-DMF; λ _{exc} = 283-373 nm. Some free radical reaction occurs.	70F735
1.89 Benzophenone, 4,4'-bis(dimethylamino)-									
C ₆ H ₆	O ₂		0.37*	0.41 ^T	0.41		PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to f _Δ ^T (S') = 0.39; meas. Φ _T (S) = 1 ^c ; λ _{exc} = 337 nm. Showed P _T ^{O₂} (S and S') > 0.95.	85A268
CH ₃ CN	O ₂		0.16 ^T	0.35			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to f _Δ ^T (S') = 0.37; meas. Φ _T (S) = 0.47 ^e ; λ _{exc} = 337 nm. Showed P _T ^{O₂} (S and S') > 0.95.	85A268
1.90 Benzophenone, 4,4'-dimethoxy-									
C ₆ H ₆	O ₂		0.30*	0.34 ^T	0.34		PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to f _Δ ^T (S') = 0.39; meas. Φ _T (S) = 1 ^c ; λ _{exc} = 337 nm. Showed P _T ^{O₂} (S and S') > 0.95.	85A268
CH ₃ CN	O ₂		0.40 ^T	0.40			PL/Ad,TAt-50,42	S' = BP; A = DPBF; TA = 1-MeNp; rel. to f _Δ ^T (S') = 0.37; meas. Φ _T (S) = 1 ^c ; λ _{exc} = 337 nm. Showed P _T ^{O₂} (S and S') > 0.95.	85A268

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.91 Benzophenone, 4-fluoro-									
	C ₆ H ₆	O ₂		0.39*	0.43		PL/Ad,TAt-50,42	$S' = BP; A = DPBF; TA = 1\text{-MeNp}; \text{rel. to } f_{\Delta}^T(S') = 0.39; \text{meas. } \phi_T(S) = 1^e; \lambda_{\text{exc}} = 337 \text{ nm. Showed } P_T^{O_2} (S \text{ and } S') > 0.95.$	85A268
			0.43 ^T						
	CH ₃ CN	O ₂		0.44 ^T	0.44		PL/Ad,TAt-50,42	$S' = BP; A = DPBF; TA = 1\text{-MeNp}; \text{rel. to } f_{\Delta}^T(S') = 0.37; \text{meas. } \phi_T(S) = 1^e; \lambda_{\text{exc}} = 337 \text{ nm. Showed } P_T^{O_2} (S \text{ and } S') > 0.95.$	85A268
1.92 Benzophenone, 4-(trifluoromethyl)-									
	C ₆ H ₆	O ₂		0.38*	0.42		PL/Ad,TAt-50,42	$S' = BP; A = DPBF; TA = 1\text{-MeNp}; \text{rel. to } f_{\Delta}^T(S') = 0.39; \text{meas. } \phi_T(S) = 1^e; \lambda_{\text{exc}} = 337 \text{ nm. Showed } P_T^{O_2} (S \text{ and } S') > 0.95.$	85A268
			0.42 ^T						
	CH ₃ CN	O ₂		0.54 ^T	0.54		PL/Ad,TAt-50,42	$S' = BP; A = DPBF; TA = 1\text{-MeNp}; \text{rel. to } f_{\Delta}^T(S') = 0.37; \text{meas. } \phi_T(S) = 1^e; \lambda_{\text{exc}} = 337 \text{ nm. Showed } P_T^{O_2} (S \text{ and } S') > 0.95.$	85A268
1.93 Benzo[<i>a</i>]phenothiazine									
	CH ₃ CN	O ₂		~0.2			PL/LI-56	$S' = Pz; \text{rel. to } \phi_{\Delta}(S') = 0.83; \lambda_{\text{exc}} = 355 \text{ nm.}$	91A308
1.94 Benzo[<i>b</i>]phenothiazine									
	CH ₃ CN	O ₂		0.19			PL/LI-56	$S' = Pz; \text{rel. to } \phi_{\Delta}(S') = 0.83; \lambda_{\text{exc}} = 355 \text{ nm.}$	91A308
1.95 Benzo[<i>c</i>]phenothiazine									
	CH ₃ CN	O ₂		0.17			PL/LI-56	$S' = Pz; \text{rel. to } \phi_{\Delta}(S') = 0.83; \lambda_{\text{exc}} = 355 \text{ nm.}$	91A308
1.96 1-Benzopyran-4-one, 2,3-diphenyl- (3-Phenylflavone)									
	C ₆ H ₆	(0.6-5.5) × 10 ⁻³	0.4 ^T	0.8			PL/Ad-43,39	$S' = BP; A = DPBF; \text{rel. to } \phi_{\Delta}(S') = 0.4; \text{meas. } \phi_T(S) = 0.5^f; \lambda_{\text{exc}} = 337 \text{ nm.}$	86E567
1.97 1-Benzopyran-4-one, 3-hydroxy-2-phenyl- (3-Hydroxyflavone)									
	n-C ₇ H ₁₆	2.3 × 10 ⁻³	0.18				PL/LI-56	$S' = Np; TD = DP; \text{rel. to } f_{\Delta}^T(S') = 1.0; \lambda_{\text{exc}} = 355 \text{ nm. } P_T^{O_2} = 1, \phi_{et} = 1.$	89E365
1.98 1-Benzopyran-4-one, 2-phenyl- (Flavone)									
	C ₆ H ₆	(0.6-5.5) × 10 ⁻³	0.5*				PL/Ad-43,39	$S' = BP; A = DPBF; \text{rel. to } \phi_{\Delta}(S') = 0.4; \text{meas. } \phi_T(S) = 0.9^f; \lambda_{\text{exc}} = 337 \text{ nm.}$	86E567
			0.6 ^T	0.7					
1.99 [1]Benzopyrano[6,7,8-<i>ij</i>]quinolizin-11-one, 2,3,6,7-tetrahydro-9-methyl-									
	C ₆ H ₆	air		0.08			CP/Pa-14	$A = Rub; \lambda_{\text{exc}} = 365 \text{ nm.}$	87F569
1.100 1,4-Benzoquinone, 2,6-diphenyl-									
	C ₆ H ₅ CH ₃	O ₂		1.1			PL/LI-56	$S' = TPP; \text{rel. to } \phi_{\Delta}(S') = 0.82; \lambda_{\text{exc}} = 530 \text{ nm.}$	88E124
1.101 1,4-Benzoquinone, 2,6-diphenyl-, complex with Triphenylamine									
	C ₆ H ₅ CH ₃	O ₂		0.14			PL/LI-56	$S' = TPP; \text{rel. to } \phi_{\Delta}(S') = 0.82; \lambda_{\text{exc}} = 530 \text{ nm. } \text{Triplet ion-radical pair.}$	88E124
1.102 1,4-Benzoquinone, tetrachloro- (Chloranil)									
	C ₆ H ₆	→∞		0.85*			PL/LI-56,42	$S' = BP; \text{rel. to } \phi_{\Delta}(S') = 0.30; \lambda_{\text{exc}} = 355 \text{ nm; used } \phi_T(S) = 1.$	91E444
			0.73 ^T	0.73					
	CHCl ₃	→∞		0.75 ^T	0.75		PL/LI-56,42	$S' = BP; \text{rel. to } \phi_{\Delta}(S') = 0.30; \lambda_{\text{exc}} = 355 \text{ nm; used } \phi_T(S) = 1. \text{ rel. to } S' \text{ in benzene, cor. for solvent } k_T.$	91E444
			0.35 ^T	0.35			PL/LI-56,42	$S' = BP; \text{rel. to } \phi_{\Delta}(S') = 0.30; \lambda_{\text{exc}} = 355 \text{ nm; used } \phi_T(S) = 1. \text{ rel. to } S' \text{ in benzene, cor. for solvent } k_T.$	91E444
1.103 1,4-Benzoquinone, tetrachloro-, complex with Anisole									
	C ₆ H ₆	→∞		0.06*			PL/LI-56,42	$S' = BP; \text{rel. to } \phi_{\Delta}(S') = 0.30; \lambda_{\text{exc}} = 355 \text{ nm; used } \phi_T(S) = 1. \text{ Triplet ion-radical pair.}$	91E444
			0.05 ^T	0.05					

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.104	1,4-Benzoquinone, tetrachloro-, complex with Durene								
	C ₆ H ₆	→∞	0.22*	0.19 ^T	0.19		PL/LI-56,42	S' = BP; rel. to Φ _Δ (S') = 0.30; λ _{exc} = 355 nm; used ϕ _T (S) = 1. Triplet ion-radical pair.	91E444
1.105	1,4-Benzoquinone, tetrachloro-, complex with Hexamethylbenzene								
	C ₆ H ₆	→∞	0.23*	0.20 ^T	0.20		PL/LI-56,42	S' = BP; rel. to Φ _Δ (S') = 0.30; λ _{exc} = 355 nm; used ϕ _T (S) = 1. Triplet ion-radical pair.	91E444
1.106	1,4-Benzoquinone, tetrachloro-, complex with 1,2,3-Trimethoxybenzene								
	C ₆ H ₆	→∞	0.09*	0.08 ^T	0.08		PL/LI-56,42	S' = BP; rel. to Φ _Δ (S') = 0.30; λ _{exc} = 355 nm; used ϕ _T (S) = 1. Triplet ion-radical pair.	91E444
1.107	1,4-Benzoquinone, tetramethyl- (Duroquinone)								
	C ₆ H ₅ CH ₃	1.2 × 10 ⁻³				1.0	PL/Ad,St-48	A = Rub; meas. ϕ _T (S) = 1.0; λ _{exc} = 347 nm; used ε _T (S) = 7600 L mol ⁻¹ cm ⁻¹ at 490 nm. n _Δ = 1.0.	83F075
1.108	Biacetyl								
	C ₆ H ₆	O ₂	0.57 ^T	0.57			CP/Pa-14,42	A = 1,2-Dimethylcyclohexene; λ _{exc} = 366 nm; used ϕ _T (S) = 1. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylenecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.109	Bicyclo[2.2.1]heptane-2,3-dione, 1,7,7-trimethyl- (Camphoroquinone, CQ)								
	C ₆ H ₆	O ₂	0.84				CP/Pa-14	A = 1,2-Dimethylcyclohexene; λ _{exc} = 366 nm. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylenecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.110	Bicyclo[2.2.1]heptane-2-thione (Thionorcamphor)								
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used ϕ _T (S) = 1. [S] → 0, Φ _Δ = 0.56 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.111	Bicyclo[2.2.1]heptane-2-thione, 3,3-dimethyl- (Thiocamphenilone)								
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used ϕ _T (S) = 1.0. [S] → 0, Φ _Δ = 0.59 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.112	Bicyclo[2.2.1]heptane-2-thione, 1,3,3,7,7-pentamethyl- (3,3-Dimethylthiocamphor)								
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used ϕ _T (S) = 1.0. [S] → 0, Φ _Δ = 0.91 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.113	Bicyclo[2.2.1]heptane-2-thione, 1,3,3-trimethyl- (Thiofenchone)								
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used ϕ _T (S) = 1.0. [S] → 0, Φ _Δ = 0.83 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.114	Bicyclo[2.2.1]heptane-2-thione, 1,7,7-trimethyl- (Thiocamphor)								
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used ϕ _T (S) = 1.0. [S] → 0, Φ _Δ = 0.87 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.115	Biphenyl								
	c-C ₆ H ₁₂	→∞	0.73 ST				PL/LI-56	S' = Py; rel. to Φ _Δ (S') = 0.81; λ _{exc} = 355 nm.	91E297
	c-C ₆ H ₁₂	air		1.0			PL/LI-60	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 1.0; λ _{exc} = 355 nm.	87E234
	C ₆ H ₆	air	0.51*	0.45			PL/LI-60	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 0.55; λ _{exc} = 355 nm.	87E234
	C ₆ H ₆	O ₂		0.6			PR/Ad,St-49	A = DPBF; used ϕ _T (S) = 0.81, ε _T (S) = 27,100 L mol ⁻¹ cm ⁻¹ at 367 nm. Measured G(³ S*).	78E263
	CH ₃ CN	→∞	0.27 ST				PL/LI-56	S' = DCA; rel. to Φ _Δ (S') = 2.0; λ _{exc} = 355 nm.	91E297

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.115 Biphenyl—Continued									
	CH ₃ CN	air		1.0			PL/LI-60	$S' = Np$; TD = p-MAP; rel. to $f_{\Delta}^T(S') = 1.0$; $\lambda_{exc} = 355$ nm.	87E234
	H ₂ O (mic)	O ₂		1.0			PL/LI-60	$S' = Np$; TD = BP; rel. to $f_{\Delta}^T(S') = 1.0$; $\lambda_{exc} = 355$ nm.	87E234
1.116 Bis(2,2'-bipyridine)bis(cyano)ruthenium(II)									
	MeOH	O ₂		0.79 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.117 Bis(1,10-phenanthroline)-4,7-di(sulfonatophenyl)-1,10-phenanthrolineosmium(II)									
	MeOH	O ₂		0.74 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.118 Bis(1,10-phenanthroline)-4,7-di(sulfonatophenyl)-1,10-phenanthroline-ruthenium(II)									
	MeOH	O ₂		0.82 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.119 5-Bromo-1,10-phenanthrolinebis(1,10-phenanthroline)ruthenium(II) ion									
	MeOH	O ₂		0.80 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.120 Carbon sixty-atom molecule (Buckminsterfullerene)									
	C ₆ H ₅ CH ₃	air		1.0 ^T	1.0		PL/Hp-53,42	$\lambda_{exc} = 510$ nm; used $\phi_T(S) = 1$.	91E368
	C ₆ H ₆	air		0.92 ^T			PL/Hp-52	$\lambda_{exc} = 530$ nm.	91E534
	C ₆ H ₆	air		0.98 ^T			PL/Hp-52	$\lambda_{exc} = 340$ nm.	91E534
	C ₆ H ₆	air		0.96 ^T			PL/LI-56	$S' = TPP$; rel. to $\phi_{\Delta}(S') = 0.62$; $\lambda_{exc} = 532$ nm. $P_T^{O_2} = 1$.	91E003
	C ₆ H ₆	air		0.76 ^T			PL/LI-56	$S' = TPP$; rel. to $\phi_{\Delta}(S') = 0.62$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	91E003
	C ₆ H ₆	air		0.76 ^T			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	91E003
1.121 Carbon seventy-atom molecule									
	C ₆ H ₆	air		0.81 ^T	-1		PL/LI-56,42	$S' = TPP$; rel. to $\phi_{\Delta}(S') = 0.62$; meas. $\phi_T(S) = 0.9$; $\lambda_{exc} = 355, 532$ nm.	91E594
1.122 β-apo-14'-Carotenol (<i>all-trans</i>-C₂₂ aldehyde)									
	c-C ₆ H ₁₂	air					PL/Ad-49,39	$A = DPBF$; $AC = S$; $\lambda_{exc} = 337$ nm; used $k_d = 5 \times 10^4$ s ⁻¹ , $k_A = 3.4 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\varepsilon_T(AC) = 121000$ L mol ⁻¹ cm ⁻¹ at 470 nm. $f_{\Delta}^T P_T^{O_2} + P_S^{O_2} f_{\Delta}^S / \phi_T^{O_2} = 1.4$.	85F041
	c-C ₆ H ₁₂	O ₂		0.48 ^T	-1		PL/Ad-49,42	$A = DPBF$; $AC = BP$; $\lambda_{exc} = 337$ nm; used $k_d = 5.0 \times 10^4$ s ⁻¹ , $k_A = 3.4 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\phi_T(S) = 0.54^f$, $\phi_T(AC) = 1$, $\varepsilon_T(AC) = 7600$ L mol ⁻¹ cm ⁻¹ at 532 nm.	84F005
1.123 5-Chloro-1,10-phenanthrolinebis(1,10-phenanthroline)ruthenium(II) ion									
	MeOH	O ₂		0.81 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.124 Chrysene									
	c-C ₆ H ₁₂	$\rightarrow \infty$		0.65 ST			PL/LI-56	$S' = Py$; rel. to $\phi_{\Delta}(S') = 0.81$; $\lambda_{exc} = 355$ nm.	91E297
	n-C ₆ H ₁₄	air		0.3			PL/Ad-43	$S' = An$; $A = DPBF$; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 264$ nm. $P_T^{O_2} = 1$.	82E258
	C ₆ H ₅ CH ₃	1.2×10^{-3}		1.2			PL/LI-56	$S' = PdMPDME$; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.	82E010
	C ₆ H ₆	O ₂		0.66			PL/LI-56	$S' = Pz$; rel. to $\phi_{\Delta}(S') = 0.83$. Measured $P_T^{O_2} = 0.99$ and $\phi_T^{O_2} = \phi_T(S)$. Authors assume $f_{\Delta}^S = 0$ and $\phi_T(S) = 0.81$ to give $f_{\Delta}^T = 0.81$ but $P_S^{O_2}$ is estimated to be >0.8 so values of f_{Δ}^S and f_{Δ}^T are indeterminable.	88E449

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.124 Chrysene—Continued									
C ₆ H ₆	O ₂		0.69				PL/Hp-52	$\lambda_{exc} = 355$ nm. Measured $\phi_{\Delta} = 0.68$, $P_T^{O_2} = 0.99$ and $\phi_T^{O_2} = \phi_T(S)$ and ϕ_F . Authors assume $f_{\Delta}^S = 0$ and $\phi_T(S) = 0.81$ to give $f_{\Delta}^T = 0.85$ but $P_S^{O_2}$ is estimated to be >0.8 so values of f_{Δ}^S and f_{Δ}^T are indeterminable.	88E449
CCl ₄	air		0.2				MP/LI-56	$S' = TPP$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 652$ nm.	83E813
CH ₃ CN	→ ∞		0.30 ST				PL/LI-56	$S' = DCA$; rel. to $\phi_{\Delta}(S') = 2.0$; $\lambda_{exc} = 355$ nm.	91E297
EtOH	O ₂		0.90				CP/Ac-43	$S' = MB^+$; A = Bu ₂ S; rel. to $\phi_{\Delta}(S') = 0.50^b$; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$.	74F648
1.125 Chrysene, 2-bromo-									
EtOH	O ₂		1				CP/Ac-43	$S' = MB^+$; A = Bu ₂ S; rel. to $\phi_{\Delta}(S') = 0.50^b$; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$.	74F648
1.126 Chrysene, 2-chloro-									
EtOH	O ₂		1				CP/Ac-43	$S' = MB^+$; A = Bu ₂ S; rel. to $\phi_{\Delta}(S') = 0.50^b$; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$.	74F648
1.127 Coronene									
C ₆ H ₅ CH ₃	1.2×10^{-3}		0.90				PL/LI-56	$S' = PdMPDME$; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.	82E010
C ₆ H ₆	1.9×10^{-3}		0.94				CP/Ac-46	$\lambda_{exc} = 365$ nm. Assumed $f_T^{O_2} = 1$; measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 1.80$ and 3.3 for $S' = A = DMA$ and DPBF, resp.	81F364
C ₆ H ₆	9.0×10^{-3}	0.97	≥0.95	0			CP/Ac-46	$\lambda_{exc} = 365$ nm; used $\phi_T(S) = 0.56$. Assumed $f_T^{O_2} = 1$; measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.95$ and 1.25 for $S' = A = DMA$ and DPBF, resp.	81F364
1.128 Coumarin									
D ₂ O	air ^a		0.01				PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.3$; $\lambda_{exc} = 337$ nm.	86F144
MeOH	air ^a		0.03				PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.4$; $\lambda_{exc} = 337$ nm.	86F144
1.129 Coumarin, 7-(diethylamino)-4-methyl-									
C ₆ H ₆	air		0.08				CP/Pa-14	A = Rub; $\lambda_{exc} = 365$ nm.	87F569
1.130 Cycloheptatriene									
C ₆ H ₆	2×10^{-3}		0.80*				PL/LI-60	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm. Measured $P_T^{O_2}$.	89A235
			0.66						
1.131 1,3-Cyclohexadiene									
C ₆ H ₆	8.7×10^{-4}		0.48*				PL/LI-60	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm. Measured $P_T^{O_2}$.	89A235
			0.40						
1.132 2-Cyclohexenethione, 3,5,5-trimethyl-									
C ₆ H ₆	$(1.9-9.1) \times 10^{-3}$	0.9 ^T	0.9				PL/Ad-43,39	$S' = DMTBP$; A = DPBF; rel. to $\phi_{\Delta}(S') = 1$; meas. $\phi_T(S) = 1$; $\lambda_{exc} = 532$ nm. Used $P_S^{O_2} = 0$, $P_T^{O_2} = 1$.	86A240
C ₆ H ₆	$(1.9-9.1) \times 10^{-3}$	0.5*	0.6 ^T	0.6			PL/Ad-43,39	$S' = BP$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.4$; meas. $\phi_T(S) = 1$; $\lambda_{exc} = 337$ nm. Used $P_S^{O_2} = 0$, $P_T^{O_2} = 1$.	86A240
1.133 Cyclopentadiene									
C ₆ H ₆	8.7×10^{-4}		0.90*				PL/LI-60	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm. Measured $P_T^{O_2}$.	89A235
			0.75						
1.134 7-Dehydrocholesterol									
C ₆ H ₆	air		0.96*				PL/LI-60	$S' = Np$; TD = p-MAP; rel. to $f_{\Delta}^T(S') = 0.55$; $\lambda_{exc} = 355$ nm.	88E575
			0.85						

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.135 Diacenaphtho[1,2-<i>b</i>:2',1'-<i>d</i>]thiophene (DNT)									
	C ₆ H ₆	air ^a		0.46			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$. Supersedes 0.98 quoted in [83F172].	92F013
	CH ₃ CN	air ^a		0.39			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$. Supersedes 0.62 quoted in [83F172].	92F013
1.136 2,7-Diazapyrene, 2,7-dimethyl-									
	D ₂ O	O ₂		0.14			PL/LI-56	$S' = ZnTMpyP^{4+}$; rel. to $\phi_{\Delta}(S') = 0.88$; meas. $\phi_T(S) = 0.17$; $\lambda_{exc} = 355$ nm.	91R201
1.137 Dibenz[<i>a,h</i>]anthracene									
	C ₆ H ₅ CH ₃	1.2 × 10 ⁻³			1.0		PL/Ad/St-48	$A = Rub$; meas. $\phi_T(S) = 0.9$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$; used $c_T(S) = 13,000$ L mol ⁻¹ cm ⁻¹ at λ_{max} ; $n_{\Delta} = 1.0$.	83F075
	C ₆ H ₅ CN	1.2 × 10 ⁻³			0.23		PL/Ad/St-48	$A = Rub$; meas. $\phi_T(S) = 0.9$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$; used $\varepsilon_T(S) = 10,500$ L mol ⁻¹ cm ⁻¹ at λ_{max} ; $n_{\Delta} = 0.23$.	83F075
1.138 Dibenzo[<i>def,mno</i>]chrysene (Anthanthrene)									
	C ₆ H ₆	O ₂ var.		1			CP/Ac-14,38	$\lambda_{exc} = 435.8$ nm. A = DMA and DMBA; results consistent with $f_{\Delta}^S \ll f_{\Delta}^T$; assumed $P_T^{O_2} = 1$; measured $\phi_T f_{\Delta}^T / (f_{\Delta}^T + f_{\Delta}^S) = 0.22$.	69F388
1.139 Dibenzo[<i>a,o</i>]perylene, 7,16-diphenyl- (Mesodiphenylhelianthrene. MDH)									
	c-C ₆ H ₁₂	air		0.33			CP/Ac-14	$A = S$; $\lambda_{exc} = 578$ nm. Recalculated using $f_r^A = 0.30$.	83F406
	n-C ₅ H ₁₂	air		0.28			CP/Ac-A.18	$A = S$; $\lambda_{exc} = 546$ nm. $f_r^A = 0.30$	87F480
	C ₆ H ₅ CH ₃	air		0.67			CP/Ac-14,38	$A = S$; meas. $\phi_T(S) = 0.52$; $\lambda_{exc} = 578$ nm. $f_T^{O_2} = 1$, $f_r^A = 0.30$, [O ₂] varied, ($f_{\Delta}^S + f_{\Delta}^T f_T^{O_2}$) = 1.2.	87F479
	C ₆ H ₅ CH ₃	(2-9) × 10 ⁻³			0.35		CP/Ac-14,38	$A = S$. Assumed $f_T^{O_2} = 1$, $\phi_T f_{\Delta}^T = 0.16$.	84F197
	CCl ₄	air		0.50			CP/Ac-14	$A = S$. $f_T^{O_2} = 1$, $f_r^A = 0.30$, [O ₂] varied.	87F479
	CH ₃ COCH ₃	air		0.67			CP/Ac-A.18	$A = S$; $\lambda_{exc} = 546$ nm. $f_r^A = 0.30$	87F480
	CHCl ₃	air		0.43			CP/Ac-14	$A = S$; $\lambda_{exc} = 578$ nm. Recalculated using $f_r^A = 0.30$.	83F406
	CS ₂	air		0.33			CP/Ac-14	$A = S$; $\lambda_{exc} = 578$ nm. Recalculated using $f_r^A = 0.30$.	83F406
	MeOH /C ₆ H ₅ CH ₃ (97:3)	air		0.50			CP/Ac-A.18	$A = S$; $\lambda_{exc} = 546$ nm. $f_r^A = 0.30$	87F480
	C ₆ H ₅ CH ₂ OH	air		0.43			CP/Ac-A.18	$A = S$; $\lambda_{exc} = 546$ nm. $f_r^A = 0.30$	87F480
	<i>m</i> -Cresol	air		0.42			CP/Ac-A.18	$A = S$; $\lambda_{exc} = 546$ nm. $f_r^A = 0.30$	87F480
1.140 Dicyanobis(1,10-phenanthroline)ruthenium(II)									
	MeOH	O ₂		0.68 ^T			CL/Oc-14	$A = TME$; $\lambda_{exc} = 488$ nm.	777221
1.141 (4,7-Diphenyl-1,10-phenanthroline)bis(1,10-phenanthroline)osmium(II) ion									
	MeOH	O ₂		0.78 ^T			CL/Oc-14	$A = TME$; $\lambda_{exc} = 488$ nm.	777221
1.142 Ergosterol									
	C ₆ H ₆	5.5 × 10 ⁻⁴		0.96*			PL/LI-60	$S' = Np$; TD = p-MAP; rel. to $f_{\Delta}^T(S') = 0.55$; $\lambda_{exc} = 355$ nm.	87E055
				0.85					
	C ₆ H ₆	8.7 × 10 ⁻⁴		1.0*			PL/LI-60	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm. Measured $P_T^{O_2}$.	89A235
				0.83					

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.143	9,10-Ethenoanthracene, 9-acethoxy-11,12-dibenzoyl-9,10-dihydro-	C ₆ H ₆	air ^a	0.62 ^T	0.9		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.7 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.144	9,10-Ethenoanthracene, 11,12-dibenzoyl-9,10-dihydro-9,10-dimethoxy-	C ₆ H ₆	air ^a	0.17 ^T	0.9		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.2 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.145	9,10-Ethenoanthracene, 11,12-dibenzoyl-9,10-dihydro-9-hydroxy-	C ₆ H ₆	air ^a	0.66 ^T	0.9		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.7 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.146	9,10-Ethenoanthracene, 11,12-dibenzoyl-9,10-dihydro-9-methoxy-	C ₆ H ₆	air ^a	0.57 ^T	0.9		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.6 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.147	9,10-Ethenoanthracene, 11,12-dibenzoyl-9-ethyl-9,10-dihydro-	C ₆ H ₆	air ^a	0.57 ^T	0.9		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.6 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.148	9,10-Ethenoanthracene-9-carbonitrile, 11,12-dibenzoyl-9,10-dihydro-	C ₆ H ₆	air ^a	0.44 ^T	0.6		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.7 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.149	9,10-Ethenoanthracene-9-carboxaldehyde, 11,12-dibenzoyl-9,10-dihydro-	C ₆ H ₆	air ^a	0.41 ^T	0.7		PL/Ad-49,42	A = DPBF; AC = BP; meas. Φ _T (S) = 0.6 ^f ; λ _{exc} = 337 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	85B073
1.150	Fluoranthene	n-C ₆ H ₁₄	air	0.5			PL/Ad-43	S' = An; A = DPBF; rel. to Φ _Δ (S') = 1; λ _{exc} = 264 nm. P ₁ ^{O₂} = 1.	82E258
1.151	Fluorene	c-C ₆ H ₁₂	air	1.0			PL/LI-60	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 1.0; λ _{exc} = 355 nm.	87E234
		C ₆ H ₆	air	0.74*			PL/LI-60	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 0.55; λ _{exc} = 355 nm.	87E234
		CH ₃ CN	air	0.66			PL/LI-60	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 1.0; λ _{exc} = 355 nm.	87E234
		D ₂ O (mic)	O ₂	1.0			PL/LI-60	S' = Np; TD = BP; rel. to f _Δ ^T (S') = 1.0; λ _{exc} = 355 nm. [SDS] = 0.2-0.5 mol L ⁻¹ .	87E234
		MeOH	O ₂	0.09			CP/Oc-14	A = TME; λ _{exc} = 283-373 nm.	70F735
		MeOH	O ₂	0.10			CP/Oc-14	A = 2,5-DMF; λ _{exc} = 283-373 nm.	70F735
		diox	air	1.0			PL/LI-60	S' = Np; TD = p-MAP; rel. to f _Δ ^T (S') = 1.0; λ _{exc} = 355 nm.	87E234

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.152 Fluorene, 9-(phenylsulfonyl)-									
	tert-BuOH	O ₂	0.035				CP/Pa-14	A = S; P = 9-Fluorenone; $\lambda_{exc} = 360$ nm.	70F735
1.153 9-Fluorenone									
	C ₆ H ₆	O ₂	0.82 ^T	0.88			PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.93$. Measured $\phi_{\Delta} = 0.82$, $P_T^{O_2} = 1$ and ϕ_P .	88E449
	C ₆ H ₆	O ₂	0.83 ^T	0.89			PL/LI-56,42	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 0.93$. Measured $P_T^{O_2} = 1$.	88E449
	C ₆ H ₆	air	0.7 ^T	0.8			PL/LI,St-55,42	S' = Ac; rel. to $f_{\Delta}^T(S') = 1.0$; $\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.93^C$.	84E287
	CD ₃ OD	air ^a	0.02				CP/LI-56	S' = RB; rel. to $\phi_{\Delta}(S') = 0.76$. $P_T^{O_2} = 1$; measured ratio of I_A at $\lambda_{exc}(S) = 367$ and $\lambda_{exc}(S') = 547$ nm.	91F023
	MeOH	O ₂	0.07				CP/Oc-14	A = 2,5-DMF; $\lambda_{exc} = 283-373$ nm.	70F735
	MeOH	O ₂	0.03				CP/Oc-14	A = TME; $\lambda_{exc} = 283-373$ nm.	70F735
1.154 Fluorescein dianion									
	c-C ₆ H ₁₂ (mic)	air	0.15				CP/Ac-14	A = DPBF. Reverse micelles [DAP] = 8 × 10 ⁻² mol L ⁻¹ ; ϕ_{Δ} decreased with added H ₂ O.	80N092
	EtOH	air	0.03				CP/Ac-44	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
	EtOH	air ^a	0.13				CP/Ac-14	A = DPBF; $\lambda_{exc} = 488$ nm. Assumed $f_r^A = 2$.	76R193
	H ₂ O pH = 7	air	0.03				CP/Ac-44	S' = Eos; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
	H ₂ O	air ^a	0.06				CP/Ac-43,42	S' = MB ⁺ ; A = 2,5-DMF; rel. to $\phi_{\Delta}(S') = 0.52$; used $\phi_T(S) = 0.05$. Assumed $P_T^{O_2} = 1$.	737339
1.155 Fluorescein, dibromo-, dianion									
	EtOH	air	0.29				CP/Ac-44	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
	H ₂ O pH = 7	air	0.42				CP/Ac-44	S' = Eos; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
1.156 Fluorescein, 4',5'-dibromo-2',7'-dinitro-, dianion (Eosin B)									
	EtOH	air	0.37				CP/Ac-44	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
	H ₂ O pH = 7	air	0.52				CP/Ac-44	S' = Eos; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
1.157 Fluorescein, 2',7'-dibromo-4'-(hydroxymercuri)-, dianion (Mercurochrome)									
	EtOH	air	0.14	1.0			PL/LI-56,42	S' = RB; rel. to $\phi_{\Delta}(S') = 0.76$; meas. $\phi_T(S) = 0.14$.	92E001
	MeOH	O ₂	~0.1				CP/Oc-43	S' = Eos; A = 2,5-DMF; rel. to $\phi_{\Delta}(S') = 0.4$.	90F289
1.158 Fluorescein, 2',7'-dichloro-, dianion									
	EtOH	air	0.04				CP/Ac-44	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
	H ₂ O pH = 7	air	0.07				CP/Ac-44	S' = Eos; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
	H ₂ O (mic)	air	0.06				CP/Ac-44	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76^b$. [SDS] = 0.1 mol L ⁻¹ .	86N209
	H ₂ O (mic)	air	0.03				CP/Ac-44	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76^b$. [CTAB] = 0.1 mol L ⁻¹ .	86N209
1.159 Fluorescein, 4',5'-dichloro-, dianion									
	EtOH	air	0.04				CP/Ac-44	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
	H ₂ O pH = 7	air	0.07				CP/Ac-44	S' = Eos; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
1.160 Fluorescein, diiodo-, dianion									
	EtOH	air	0.33				CP/Ac-44	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.160 Fluorescein, diiodo-, dianion—Continued									
	H ₂ O pH = 7	air		0.48			CP/Ac-44	S' = Eos; rel. to Φ _Δ (S') = 0.57. A = RNO and ADPA.	83E113
1.161 Fluorescein, 2',4',5',7'-tetrabromo-, dianion (Eosin Y)									
	CH ₃ CN	air		0.57 ^T			CP/Pa-14	A = DPF; P = 2,5-Diphenylfuran endoperoxide. Method adapted to allow for chain reaction.	87F440
	CH ₃ COCH ₃	air ^a		0.12 ^T			MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8. Reference value in CCl ₄ .	82Z317
	EtOH	air		0.60 ^T	0.92		PL/LI-56,42	S' = RB; rel. to Φ _Δ (S') = 0.76; meas. ϕ _T (S) = 0.65.	92E001
	EtOH	9.9 × 10 ⁻³		0.42 ^T	0.64		CP/Oc-43,42	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50; used ϕ _T (S) = 0.65 ^d . Used P _T ^{O₂} = 1.	84F191
	D ₂ O pD = 8.2	air		0.58 ^T			PL/LI-56	rel. to Eos in EtOH, unclear what reference value was used	91N118
	D ₂ O (mic) pD = 8.2	air		0.24 ^T			PL/LI-56	rel. to Eos in EtOH, unclear what reference value was used; CPC micelles.	91N118
	H ₂ O	air ^a		0.57 ^T	0.89		CP/Ac-43,42	S' = MB ⁺ ; A = 2,5-DMF; rel. to Φ _Δ (S') = 0.52; used ϕ _T (S) = 0.64. Assumed P _T ^{O₂} = 1.	737339
	H ₂ O (mic)	air		0.54 ^T			CP/Ac-44	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76 ^b . [SDS] = 0.1 mol L ⁻¹ .	86N209
	H ₂ O (mic)	air		0.14 ^T			CP/Ac-44	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76 ^b . [CTAB] = 0.1 mol L ⁻¹ .	86N209
	MeOH	air ^a		0.26 ^T			CP/Ac-43	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76.	90F251
	MeOH	air ^a		0.30 ^T			CP/Ac-43	A = DPBF. Rel. to Φ _Δ = 0.32 for eosin disodium salt in ethanol.	90F251
	MeOH	1.06 × 10 ⁻²		0.42 ^T	0.64		CP/Oc-43,39	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50; used ϕ _T (S) = 0.66 ^f . Used P _T ^{O₂} = 1.	84F191
1.162 Fluorescein, 2',4',5',7'-tetrabromo-, benzyl ester, monoanion									
	MeOH	air ^a		0.36			CP/Ac-43	S' = Eos; A = DPBF; rel. to Φ _Δ (S') = 0.32. Rel. to S' in ethanol.	90F251
	MeOH	air ^a		0.32			CP/Ac-43	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76.	90F251
1.163 Fluorescein, 2',4',5',7'-tetrabromo-, p-isopropylbenzyl ester, monoanion									
	MeOH	air ^a		0.32			CP/Ac-43	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76.	90F251
	MeOH	air ^a		0.36			CP/Ac-43	S' = Eos; A = DPBF; rel. to Φ _Δ (S') = 0.32. Rel. to S' in ethanol.	90F251
1.164 Fluorescein, 2',4',5',7'-tetrabromo-, methyl ester, protonated									
	diox	air ^a		0.26			CP/Ac-43	S' = O-Methyl Rose Bengal methyl ester; A = TPCP; rel. to Φ _Δ (S') = 0.70. Soln. contg. 10 ⁻³ mol L ⁻¹ HCl.	90F251
	diox	air ^a		0.30			CP/Ac-43	S' = Eos; A = TPCP; rel. to Φ _Δ (S') = 0.32. Soln. contg. 10 ⁻³ mol L ⁻¹ HCl. rel. to S' in ethanol.	90F251
1.165 Fluorescein, 2',4',5',7'-tetrabromo-, methyl ester, monoanion									
	MeOH	air ^a		0.32			CP/Ac-43	S' = Eos; A = DPBF; rel. to Φ _Δ (S') = 0.32. Rel. to S' in ethanol.	90F251
	MeOH	air ^a		0.28			CP/Ac-43	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76.	90F251
1.166 Fluorescein, 2',4',5',7'-tetrabromo-3,4,5,6-tetrachloro-, dianion (Phloxin B)									
	EtOH	air		0.40			CP/Ac-44	S' = Eos; A = DPBF; rel. to Φ _Δ (S') = 0.32.	83E113
	H ₂ O pH = 7	air		0.65			CP/Ac-44	S' = Eos; rel. to Φ _Δ (S') = 0.57. A = RNO and ADPA.	83E113

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.166 Fluorescein, 2',4',5',7'-tetrabromo-3,4,5,6-tetrachloro-, dianion (Phloxin B)—Continued									
	H ₂ O (mic)	air		0.35			CP/Ac-44	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76 ^b . [CTAB] = 0.1 mol L ⁻¹ .	86N209
	H ₂ O (mic)	air		0.39			CP/Ac-44	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.76 ^b . [SDS] = 0.1 mol L ⁻¹ .	86N209
1.167 Fluorescein, 2',4',5',7'-tetrachloro-, dianion									
	EtOH	air		0.05			CP/Ac-44	S' = Eos; A = DPBF; rel. to Φ _Δ (S') = 0.32.	83E113
	H ₂ O pH = 7	air		0.05			CP/Ac-44	S' = Eos; rel. to Φ _Δ (S') = 0.57. A = RNO and ADPA.	83E113
1.168 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo- (Rose Bengal lactone)									
	C ₆ H ₅ CH ₃ /MeOH (99:1)	air		0.65 ^T			CP/Ac-14	A = DPBF; λ _{exc} = 546 nm. [O ₂] varied.	87F479
	CCl ₄ /MeOH (97:3)	air		0.71 ^T			CP/Ac-14	A = DPBF; λ _{exc} = 546 nm. [O ₂] varied.	87F479
	DMF	air		0.4 ^T			CP/Ac-14,A18	A = DPBF.	79F412
1.169 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, dianion (Rose Bengal dianion, RB)									
	tert-BuOH	O ₂		0.80 ^T			CP/Pa-14	A = 9-(Phenylsulfonyl)fluorene anion; P = 9-Fluorenone; λ _{exc} = 546 nm.	707250
	C ₆ H ₅ CH ₂ OH	air		0.95 ^T			CP/Ac-14	A = DPBF; λ _{exc} = 546 nm. [O ₂] varied.	87F479
	CH ₃ CN	air		0.54 ^T			CP/Ac-14	A = DPBF.	90E215
	CH ₃ CN	air ^a		0.83 ^T			CP/Pa-14	A = DPF; P = 2,5-Diphenylfuran endoperoxide. Method adapted to allow for chain reaction.	87F440
	EtOH	air ^a		0.68 ^T	0.8		CP/Pa-43,42	A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 555 nm; used φ _T (S) = 0.90 ^d . Rel. to RB in methanol.	86F462
	EtOH	air		0.86 ^T	1		CP/Ac-44,42	S' = Eos; A = DPBF; rel. to Φ _Δ (S') = 0.32; used φ _T (S) = 0.90 ^d .	83E113
	D ₂ O pH = 7.4	air		0.62 ^T			PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.62. independent of λ = 308 and 532 nm.	91R177
	D ₂ O pD = 8.2	air		0.75 ^T			PL/LI-56	rel. to Φ _Δ (S') = 0.75. rel. to RB in EtOH, cor. for solvent k _r .	91N118
	D ₂ O (mic) pD = 8.2	air		0.75 ^T			PL/LI-56	rel. to Φ _Δ (S') = 0.75. rel. to RB in EtOH, cor. for solvent k _r ; CPC micelles.	91N118
	H ₂ O	air or O ₂		0.76				See Table 4.	
	H ₂ O pH = 7	air		0.75 ^T			CP/Ac-44	S' = Eos; rel. to Φ _Δ (S') = 0.57. A = RNO and ADPA.	83E113
	H ₂ O pH = 7.0	O ₂			0.76		PL/Ad,St-48	A = ADPA; λ _{exc} = 532 nm. used Δε _T (S) = 4900 L mol ⁻¹ cm ⁻¹ at 600 nm; assumed P _{S⁰} ² = 0 and measured P _{T⁰} ² = 1.	87A043
	H ₂ O pH = 7.4	O ₂		0.75 ^T			CP/Ac-14	A = TrpH; λ _{exc} = 540 nm. 1.6% NaCl in phosphate buffer.	88N170
	H ₂ O pH = 7.4	O ₂		0.74 ^T			CP/Oc-14	A = Im; λ _{exc} = 540 nm. 1.6% NaCl in phosphate buffer.	88N170
	i-octane/H ₂ O (96:4) (mic)	O ₂		0.81 ^T	1		PL/Hp-53,42	meas. φ _T (S) = 0.78; λ _{exc} = 355 nm. Soln. cont. 0.1 mol L ⁻¹ AOT; meas. φ _F = 0.057.	91N191
	i-octane/H ₂ O (96:4) (mic)	O ₂		0.80 ^T	1		PL/Hp-52,42	S' = Pz; rel. to Φ _Δ (S') = 0.80; meas. φ _T (S) = 0.78; λ _{exc} = 355 nm. Soln. cont. 0.1 mol L ⁻¹ AOT.	91N191

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.169 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, dianion (Rose Bengal dianion, RB)—Continued									
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.75 ^T				CP/Pa-14	A = TrpH; λ_{exc} = 555 nm.	87F104
	MeOH	air or O ₂	0.80					See Table 4.	
	MeOH	air	0.81 ^T				CP/Ac-14	A = DPBF.	90E215
	MeOH	air	0.77 ^T				CP/Ac-14	A = DPBF.	90F157
	MeOH	air ^a	0.82 ^T				CP/Ac-43	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S')$ = 0.32. Rel. to S' in ethanol; ϕ_{Δ} = 0.93 for 'pure' RB rel. to Eos; ϕ_{Δ} = 0.87 for 'commercial' RB rel. to Eos; ϕ_{Δ} = 0.81 for 'pure' RB rel. to ϕ_{Δ} = 0.76 for commercial RB.	90F251
	MeOH	1.06×10^{-2}	0.79 ^T	~1			CP/Oc-43,39	S' = MB ⁺ ; A = TME; rel. to $\phi_{\Delta}(S')$ = 0.50; used $\phi_T(S)$ = 0.80 ^T . Used $P_T^{O_2}$ = 1.	84F191
	MeOH	O ₂	0.80 ^T				CL/Oc-14	A = TME; λ_{exc} = 488 nm.	777221
	MeOH	O ₂	0.80 ^T				CP/Oc-14	A = TME; λ_{exc} = 283-373 nm.	70F735
	MeOH	O ₂	0.82 ^T				CP/Oc-14	A = 2,5-DMF; λ_{exc} = 283-373 nm.	70F735
	MeOH/ C ₆ H ₅ CH ₃ (97:3)	air	0.91 ^T				CP/Ac-14	A = DPBF. [O ₂] varied.	87F479
	2-PrOH	air	0.76 ^T				CP/Ac-14	A = DPBF.	90E215
1.170 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, 6-O-acetyl-, ethyl ester									
	CH ₂ Cl ₂	O ₂	0.61				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 561 nm.	84F297 85F152
1.171 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester									
	CH ₂ Cl ₂ / MeOH (8:2)	O ₂	0.37				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 566 nm.	85F171
1.172 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, monoanion									
	MeOH	air ^a	0.94				CP/Ac-43	S' = Eos; A = DPBF; rel. to $\phi_{\Delta}(S')$ = 0.32. Rel. to S' in ethanol.	90F251
	MeOH	air ^a	0.82				CP/Ac-43	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S')$ = 0.76.	90F251
	MeOH	O ₂	0.72				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 566 nm.	85F171
1.173 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, benzyltriphenylphosphonium salt									
	MeOH	O ₂	0.76				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 561 nm.	88F161
1.174 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, diphenyliodonium salt									
	MeOH	O ₂	0.74				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 561 nm.	88F161
1.175 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, diphenylmethylsulfonium salt									
	MeOH	O ₂	0.73				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 561 nm.	88F161
1.176 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, triethylammonium salt									
	CH ₂ Cl ₂	O ₂	0.67				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S')$ = 0.76; λ_{exc} = 561 nm.	84F297 85F152

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.176 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, triethylammonium salt—Continued									
	MeOH	O ₂	0.74				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152
1.177 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, benzyl ester, 2,4,6-triphenylpyrylium salt									
	MeOH	O ₂	0.70				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	88F161
1.178 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, bis(benzyltriphenylphosphonium) salt									
	MeOH	O ₂	0.74				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	88F161
1.179 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, bis(diphenyliodonium) salt									
	MeOH	O ₂	0.66				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	88F161
1.180 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, bis(triethylammonium) salt									
	CH ₂ Cl ₂	O ₂	0.48				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152
	MeOH	O ₂	0.72				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152
1.181 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, complexed with dicyclohexyl-18-crown-8									
	CH ₂ Cl ₂	air ^a	0.76				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 559 nm. Rel. to S' in methanol.	86F462
	CH ₃ COCH ₃	air ^a	0.70				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 557 nm. Rel. to S' in methanol.	86F462
	CHCl ₃	air ^a	0.76				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 559 nm. Rel. to S' in methanol.	86F462
	CHCl ₃	air ^a	0.36				CP/Ac-14	A = DPBF; λ _{exc} = 560 nm.	79F104
	MeOH	air ^a	0.63				CP/Ac-14	A = DPBF; λ _{exc} = 560 nm.	79F104
1.182 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, ethyl ester									
	CH ₂ Cl ₂	O ₂	0.61				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152
	MeOH	O ₂	0.73				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152
1.183 Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, ethyl ester, triethylammonium salt									
	CH ₂ Cl ₂	O ₂	0.71				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152
	MeOH	O ₂	0.74				CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 561 nm.	84F297 85F152

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.184	Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, <i>p</i> -isopropylbenzyl ester, protonated	diox	air ^a	0.80			CP/Ac-43	$S' = Eos; A = TPCP$; rel. to $\phi_{\Delta}(S') = 0.32$. Soln. contg. 10^{-3} mol L ⁻¹ HCl; rel. to S' in ethanol.	90F251
1.185	Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, <i>p</i> -isopropylbenzyl ester, monoanion	MeOH	air ^a	0.90			CP/Ac-43	$S' = Eos; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.32$. Rel. to S' in ethanol.	90F251
		MeOH	air ^a	0.79			CP/Ac-43	$S' = RB; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.76$.	90F251
1.186	Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, <i>O</i> -methyl-, methyl ester	diox	air ^a	0.80			CP/Ac-43	$S' = Eos; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.32$. Rel. to S' in ethanol.	90F251
		MeOH	air ^a	0.70			CP/Ac-43	$S' = RB; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.76$.	90F251
		MeOH	air ^a	0.80			CP/Ac-43	$S' = Eos; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.32$. Rel. to S' in ethanol.	90F251
1.187	Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, methyl ester, protonated	diox	air ^a	0.75			CP/Ac-43	$S' = O$ -Methyl Rose Bengal methyl ester; A = TPCP; rel. to $\phi_{\Delta}(S') = 0.70$. Soln. contg. 10^{-3} mol L ⁻¹ HCl; rel. to S' in methanol.	90F251
		diox	air ^a	0.86			CP/Ac-43	$S' = Eos; A = TPCP$; rel. to $\phi_{\Delta}(S') = 0.32$. Soln. contg. 10^{-3} mol L ⁻¹ HCl; rel. to S' in ethanol.	90F251
1.188	Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, methyl ester, monoanion	MeOH	air ^a	0.80			CP/Ac-43	$S' = RB; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.76$.	90F251
		MeOH	air ^a	0.91			CP/Ac-43	$S' = Eos; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.32$. Rel. to S' in ethanol.	90F251
1.189	Fluorescein, 3,4,5,6-tetrachloro-2',4',5',7'-tetraiodo-, octyl ester, tributylammonium salt	C ₆ H ₅ CH ₃	O ₂	0.40			CP/Pa-43	$S' = RB; A = 2,3$ -Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 561$ nm.	84F297 85F152
1.190	Fluorescein, 2',4',5',7'-tetraiodo-, dianion (Erythrosin)	CH ₃ CN	air	0.68 ^T			CP/Pa-14	A = DPF; P = 2,5-Diphenylfuran endoperoxide. Method adapted to allow for chain reaction.	87F440
		DMF	air ^a	0.54 ^T			CP/Ac-43	$S' = RB; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618
		EtOH	air	0.69 ^T			CP/Ac-44	$S' = Eos; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
		H ₂ O pH = 7	air	0.63 ^T			CP/Ac-44	$S' = Eos$; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
		H ₂ O	air ^a	0.68 ^T	0.68		CP/Ac-43,42	$S' = MB^+$; A = 2,5-DMF; rel. to $\phi_{\Delta}(S') = 0.52$; used $\phi_T(S) = 1.0$. Assumed $P_T^{O_2} = 1$.	737339
		MeOD	$\sim 10^{-3}$	0.60 ^T	0.57		PL/LI-56,42	$S' = HP$; rel. to $\phi_{\Delta}(S') = 0.53$; meas. $\phi_T(S) = 1.1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$; rel. to S' in EtOH. Recalcd. value = 0.70 using $\phi_{\Delta}(S') = 0.64$ [88Z155].	88A165
1.191	Fluorescein, tribromo-, dianion	EtOH	air	0.32			CP/Ac-44	$S' = Eos; A = DPBF$; rel. to $\phi_{\Delta}(S') = 0.32$.	83E113
		H ₂ O pH = 7	air	0.44			CP/Ac-44	$S' = Eos$; rel. to $\phi_{\Delta}(S') = 0.57$. A = RNO and ADPA.	83E113
1.192	Furan, 2,5-di(2-thienyl)-	EtOH	O ₂	~ 0.1	~ 1		PL/Ac-14,42	A = DPBF; meas. $\phi_T(S) = 0.10^f$; $\lambda_{exc} = 353$ nm. $P_T^{O_2} = 1$, $p_A = 0.75$.	85N020

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.193	Furo[2,3- <i>f</i>][1]benzopyran-7-one, 8-acetyl- (3-Acetoallopssoralen)								
	C ₆ H ₆	O ₂	0.63*	0.55 ^T	0.81		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.68$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121
1.194	Furo[2,3- <i>f</i>][1]benzopyran-7-one, 4,9-dimethyl- (4,7-Dimethylallopssoralen, 4,7-DMAPs)								
	C ₆ H ₆	1.91×10^{-3}	0.073*	0.064	0.49		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.13$; $\lambda_{exc} = 355$ nm.	87E497
1.195	Furo[2,3- <i>f</i>][1]benzopyran-7-one, 2,4,9-trimethyl- (4,7,5'-Trimethylallopssoralen)								
	C ₆ H ₆	1.91×10^{-3}	0.14*	0.12	0.68		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.18$; $\lambda_{exc} = 355$ nm.	87E497
	H ₂ O pH = 7.3	2.65×10^{-4}					CP/Pa-43	$S' = 4,7$ -DMAPs; A = Im; P = Imidazole endoperoxide; meas. $\phi_A(S)/\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 365$ nm. RNO as monitor of P.	87E497
1.196	Furo[2,3- <i>f</i>][1]benzopyran-7-one, 3,4,9-trimethyl- (4,7,4'-Trimethylallopssoralen)								
	C ₆ H ₆	1.91×10^{-3}	0.083*	0.073	0.26		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.28$; $\lambda_{exc} = 355$ nm.	87E497
	H ₂ O pH = 7.3	2.65×10^{-4}					CP/Pa-43	$S' = 4,7$ -DMAPs; A = Im; P = Imidazole endoperoxide; meas. $\phi_A(S)/\phi_{\Delta}(S') = 0.38$; $\lambda_{exc} = 365$ nm. RNO as monitor of P.	87E497
1.197	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 3-acetyl- (3-Acetoangelicin)								
	C ₆ H ₆	O ₂	0.46*	0.40 ^T	0.73		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.54$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121
1.198	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 4,6-dimethyl- (6,4-Dimethylangelicin)								
	C ₆ H ₆	O ₂	0.01 ^T	0.25			PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.04$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121
1.199	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 4,8-dimethyl- (4,5'-Dimethylangelicin)								
	C ₆ H ₆	O ₂	0.02 ^T	0.25			PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.08$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121
	H ₂ O pH = 7.3	air ^a	0.02 ^T				CP/Pa-43	$S' = Ang$; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.02^b$; $\lambda_{exc} = 365$ nm. Measured $\phi_T = 0.063$ in MeOH; RNO as monitor of P.	84E794
1.200	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 4,9-dimethyl- (4,4'-Dimethylangelicin)								
	C ₆ H ₆	O ₂	0.02 ^T	0.18			PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.11$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121
	H ₂ O pH = 7.3	O ₂	0.03 ^T				CP/Pa-43	$S' = Ang$; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.02^b$; $\lambda_{exc} = 365$ nm. Measured $\phi_T = 0.11$ in EtOH; RNO as monitor of P; $P_T^{O_2} = 1$.	84F111 84E794
1.201	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 5,9-dimethyl- (4',5-Dimethylangelicin)								
	H ₂ O pH = 7.3	O ₂	0.007 ^T				CP/Pa-43	$S' = Ang$; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.02^b$; $\lambda_{exc} = 365$ nm. Measured $\phi_T = 0.12$ in EtOH; RNO as monitor of P; $P_T^{O_2} = 1$.	84F111 84E794
1.202	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 6,9-dimethyl- (6,4'-Dimethylangelicin)								
	C ₆ H ₆	O ₂	0.01 ^T	0.14			PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.07$; $\lambda_{exc} = 355$ nm.	88E121
1.203	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 4-methyl- (4-Methylangelicin)								
	H ₂ O pH = 7.3	air ^a	0.02 ^T				CP/Pa-43	$S' = Ang$; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.02^b$; $\lambda_{exc} = 365$ nm. Measured $\phi_T = 0.05$ in MeOH; RNO as monitor of P	84E794

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.204	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 5-methyl- (5-Methylangelicin)	H ₂ O pH = 7.3	air ^a	0.02 ^T			CP/Pa-43	S' = Ang; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.02 ^b ; λ _{exc} = 365 nm. Measured Φ _T = 0.12 in MeOH; RNO as monitor of P	84E794
1.205	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 8-methyl- (8'-Methylangelicin)	H ₂ O pH = 7.3	air ^a	0.007 ^T			CP/Pa-43	S' = Ang; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.02 ^b ; λ _{exc} = 365 nm. Measured Φ _T = 0.08 in EtOH; RNO as monitor of P	84E794
1.206	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 9-methyl- (4'-Methylangelicin)	H ₂ O pH = 7.3	O ₂	0.01 ^T			CP/Pa-43	S' = Ang; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.02 ^b ; λ _{exc} = 365 nm. Measured Φ _T = 0.08 in EtOH; RNO as monitor of P; P _T ^{O₂} = 1.	84F111 84E794
1.207	Furo[2,3- <i>h</i>][1]benzopyran-2-one, 4,6,9-trimethyl- (6,4,4'-Trimethylangelicin)	C ₆ H ₆	O ₂	0.02 ^T	0.16		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.13; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.208	Furo[3,2- <i>f</i>][1]benzopyran-7-one (Isopseudopsoralen)	C ₆ H ₆	O ₂	0.11* 0.10 ^T	0.67		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.15; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.209	Furo[3,2- <i>f</i>][1]benzopyran-7-one, 8-acetyl- (3-Acetoisopseudopsoralen)	C ₆ H ₆	O ₂	0.73* 0.64 ^T	0.99		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.65; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.210	Furo[3,2- <i>g</i>][1]benzopyran-7-one, 2-acetyl-5,9-dimethyl- (5'-Aceto-4,8-dimethylpsoralen)	C ₆ H ₆	O ₂	0.43* 0.38 ^T	0.72		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.52; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.211	Furo[3,2- <i>g</i>][1]benzopyran-7-one, 2-acetyl-9-methyl- (5'-Aceto-8-methylpsoralen)	C ₆ H ₆	O ₂	0.13* 0.11 ^T	0.39		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.28; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.212	Furo[3,2- <i>h</i>][1]benzopyran-8-one, 7-acetyl- (3-Acetopseudoisopsoralen)	C ₆ H ₆	O ₂	0.63* 0.55 ^T	0.99		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.56; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.213	Helianthrene								
	n-C ₅ H ₁₂	air		0.52			CP/Ac-A.18	A = S; λ _{exc} = 546 nm.	87F480
	C ₆ H ₅ CH ₃	air		0.56			CP/Ac-14,38	A = S; meas. Φ _T (S) = 0.46; λ _{exc} = 546 nm. f _T ^{O₂} = 1, [O ₂] varied, (f _Δ ^S + f _Δ ^T)f _T ^{O₂} = 1.0.	87F479
	CCl ₄	air		0.50			CP/Ac-14	A = S; λ _{exc} = 546 nm. [O ₂] varied, f _T ^{O₂} = 1.	87F479
	CH ₃ COCH ₃	air		0.50			CP/Ac-A.18	A = S; λ _{exc} = 546 nm.	87F480
	MeOH /C ₆ H ₅ CH ₃ (97:3)	air		0.42			CP/Ac-A.18	A = S; λ _{exc} = 546 nm.	87F480
	C ₆ H ₅ CH ₂ OH	air		0.24			CP/Ac-A.18	A = S; λ _{exc} = 546 nm.	87F480
	m-Cresol	air		0.18			CP/Ac-A.18	A = S; λ _{exc} = 546 nm.	87F480
1.214	(E,E,E)-2,4,6-Heptatrienal, 5-methyl-7-(2,6,6-trimethyl-1-cyclohexen-1-yl)- (all-trans-C ₁₇ aldehyde)	c-C ₆ H ₁₂	air	0.66 ^T	1.0		PL/Ad-49,39	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 5 × 10 ⁴ s ⁻¹ , k _A = 3.4 × 10 ⁸ L mol ⁻¹ s ⁻¹ , Φ _T (S) = 0.66 ^c , ε _T (AC) = 63000 L mol ⁻¹ cm ⁻¹ at 410 nm.	85F041

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.214 (E,E,E)-2,4,6-Heptatrienal, 5-methyl-7-(2,6,6-trimethyl-1-cyclohexen-1-yl)- (all-trans-C₁₇ aldehyde)—Continued									
	c-C ₆ H ₁₂	O ₂	0.72 ^T	1			PL/Ad 49,42	A = DPBF; AC = BP; λ _{exc} = 337 nm; used k _d = 5.0 × 10 ⁴ s ⁻¹ , k _A = 3.4 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ϕ _T (S) = 0.66 ^f , ϕ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	84F005
	MeOH	air	-0.4 ^T	1			PL/Ad-49,39	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 1 × 10 ⁵ s ⁻¹ , k _A = 8 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ϕ _T (S) = 0.41 ^c , ε _T (AC) = 57000 L mol ⁻¹ cm ⁻¹ at 440 nm.	85F041
	MeOH	O ₂	0.42 ^T	1.0			PL/Ad-49,42	A = DPBF; AC = BP; λ _{exc} = 337 nm; used k _d = 1.0 × 10 ⁵ s ⁻¹ , k _A = 8.1 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ϕ _T (S) = 0.41 ^f , ϕ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	84F005
1.215 Heterocoerdianthrone (HCD)									
	C ₆ H ₃ Cl ₃	(1-50) × 10 ⁻⁴		-1	-1		CP/Ac-14,38	A = S. Assumed f _T ^{O₂} = 1.	767570
	C ₆ H ₅ CH ₃	(1-50) × 10 ⁻⁴		-1	-1		CP/Ac-14,38	A = S. Assumed f _T ^{O₂} = 1.	767570
	C ₆ H ₆	(1-50) × 10 ⁻⁴		-1	-1		CP/Ac-14,38	A = S. Assumed f _T ^{O₂} = 1.	767570
	C ₆ H ₆	(2-9) × 10 ⁻³				1.9	CP/Ac-14,38	A = DPBF; λ _{exc} = 578 nm. Assumed f _T ^{O₂} = 1, ϕ _T f _Δ ^T = 0.024.	84F197
	CCl ₄	(1-50) × 10 ⁻⁴		-1	-1		CP/Ac-14,38	A = S. Assumed f _T ^{O₂} = 1.	767570
	CHCl ₃	(1-50) × 10 ⁻⁴		-1	-1		CP/Ac-14,38	A = S. Assumed f _T ^{O₂} = 1.	767570
	CS ₂	(1-50) × 10 ⁻⁴		-1	-1		CP/Ac-14,38	A = S. Assumed f _T ^{O₂} = 1.	767570
1.216 1,3,5-Hexatriene, 1,6-diphenyl- (DPH)									
	c-C ₆ H ₁₂	air					PL/Ad-49,39	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 5 × 10 ⁴ s ⁻¹ , k _A = 3.4 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ε _T (AC) = 114000 L mol ⁻¹ cm ⁻¹ at 416 nm. ϕ _T ≈ 0; f _Δ ^S + f _T ^{O₂} f _Δ ^T = 1.7.	85F041
	n-C ₆ H ₁₄	O ₂	1.0	≥0.24	≥0.17		CP/Ac-27	A = 2,5-DMF; λ _{exc} = 313 nm. P _T ^{O₂} = 1; assumed f _T ^{O₂} = 1; used p _A = 1.	79E643
	MeOH	air					PL/Ad-49,39	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 1 × 10 ⁵ s ⁻¹ , k _A = 8 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ε _T (AC) = 121000 L mol ⁻¹ cm ⁻¹ at 410 nm. ϕ _T ≈ 0; f _Δ ^S + f _T ^{O₂} f _Δ ^T = 1.6.	85F041
1.217 Indole, 1-methyl-									
	C ₆ H ₆	air ^a		0.35			PL/βCb-57	S' = BP; TD = AP; rel. to ϕ _Δ (S') = 0.35. Measured f _Δ ^T (S)/ϕ _Δ (S') = 1.0.	76F904
	C ₆ H ₆	air ^a		>0.2			PL/βCb-57	S' = BP; TD = Xanthone; rel. to ϕ _Δ (S') = 0.35. Measured f _Δ ^T (S)/ϕ _Δ (S') = 0.7 but energy transfer efficiency < 100%.	76F904
1.218 β-Ionone									
	C ₆ H ₆	O ₂	0.22 [*]	0.25 ^T	-0.5		PL/Ad-43,39	S' = BP; A = DPBF; rel. to ϕ _Δ (S') = 0.4; meas. ϕ _T (S) = 0.5; λ _{exc} = 337 nm.	85E293
1.219 Isobenzofuran, 1,3-diphenyl- (DPBF)									
	c-C ₆ H ₁₂	air ^a	0.22				CP/Ac-14	A = S; λ _{exc} = 365 nm. In presence of 5 g L ⁻¹ ethylene-propylene-ethylidene-norbornene terpolymer.	84P629
	C ₆ H ₆	air	0.26				CP/Ac-14	A = S; λ _{exc} = 365 nm.	81F017
	C ₆ H ₆	1.9 × 10 ⁻³	0.28				CP/Ac-46	A = S; λ _{exc} = 365 nm. Assumed f _T ^{O₂} = 1; measured ϕ _Δ (S)/ϕ _Δ (S') = 0.30 and 0.56 for S' = Cor and BP, resp.	81F364
	C ₆ H ₆	9.0 × 10 ⁻³	0.78			1.5	CP/Ac-46	A = S; λ _{exc} = 365 nm. Assumed f _T ^{O₂} = 1; measured ϕ _Δ (S)/ϕ _Δ (S') = 0.80 and 0.88 for S' = Cor and BP, resp.	81F364

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.220 Naphthalene (Np)									
	Hexanes	O ₂	0.73				CP/Ac-14	A = 2,5-DMF; λ _{exc} = 313 nm. Independent of concentration.	78F016
	c-C ₆ H ₁₂	air		1.0			PL/Ad,St-49	A = DPBF; AC = S; TD = p-MAP; λ _{exc} = 355 nm; used k _d = 4.2 × 10 ⁴ s ⁻¹ , ε _{T(S)} = 24,500 L mol ⁻¹ cm ⁻¹ at 415 nm.	87E234
	n-C ₆ H ₁₄	air	0.5				PL/Ad-43	S' = An; A = DPBF; rel. to Φ _Δ (S') = 1; λ _{exc} = 264 nm. P _T ^{O₂} = 1.	82E258
	C ₆ D ₆	air		0.59*	0.49		PR/LI-60	S' = BP; rel. to f _Δ ^T (S') = 0.29.	89E113
	C ₆ H ₆	air or O ₂		0.62				See Table 4.	
	C ₆ H ₆	air	0.68*	0.56			PR/βCb-59	S' = BP; TA = Car; rel. to f _Δ ^T (S') = 0.29; used ε _{T(S)} = 13,200 L mol ⁻¹ cm ⁻¹ at 425 nm, ε _{T(S)} = 7630 L mol ⁻¹ cm ⁻¹ at 532.5 nm. P _T ^{O₂} > 0.94.	89E158
	C ₆ H ₆	air		0.55			PL/Ad,St-49	A = DPBF; TD = p-MAP; λ _{exc} = 355 nm; used k _d = 3.1 × 10 ⁴ s ⁻¹ , ε _{T(S)} = 13,200 L mol ⁻¹ cm ⁻¹ at 425 nm.	87E234
	C ₆ H ₆	air ^a		0.65			PL/βCb-57	S' = BP; TD = AP; rel. to f _Δ ^T (S') = 0.35. Measured f _Δ ^T (S)/f _Δ ^T (S') = 1.9.	76F904
	C ₆ H ₆	air ^a		0.60			PL/βCb-57	S' = BP; TD = Xanthone; rel. to f _Δ ^T (S') = 0.35. Measured f _Δ ^T (S)/f _Δ ^T (S') = 1.7.	76F904
	C ₆ H ₆	O ₂		0.5			PR/Ad,St-49	A = DPBF; used ϕ _{T(S)} = 0.82, ε _{T(S)} = 13,200 L mol ⁻¹ cm ⁻¹ at 425 nm. Measured G(³ S*).	78E263
	D ₂ O (mic)	O ₂		1.0			PL/Ad-49	A = DPBF; TD = BP; λ _{exc} = 355 nm; used k _d = 2.4 × 10 ⁴ s ⁻¹ . Soln. cont. 0.2–0.5 mol L ⁻¹ SDS; ε _{T(S)} detd. in SDS at 415 nm by comparison with ε = 24500 L mol ⁻¹ cm ⁻¹ at 415 nm in cyclohexane.	87E234
	MeOH	O ₂	0.41				CP/Ac-14	A = 2,5-DMF; λ _{exc} = 313 nm. Assumed f _T ^{O₂} = 1; P _S ^{O₂} = P _T ^{O₂} = 1; [S] → 0.	78F016
	MeOH	O ₂	0.14				CP/Oc-14	A = TME; λ _{exc} = 283–373 nm.	70F735
	MeOH	O ₂	0.14				CP/Oc-14	A = 2,5-DMF; λ _{exc} = 283–373 nm.	70F735
1.221 Naphthalene excimer									
	MeOH	O ₂	0.89				CP/Ac-14	A = 2,5-DMF; λ _{exc} = 313 nm. Assumed f _Δ ^T = 1; [S] → ∞.	78F016
1.222 Naphthalene, 1-bromo-									
	MeOH	O ₂	0.86				CP/Ac-14	A = 2,5-DMF; λ _{exc} = 313 nm.	78F016
1.223 Naphthalene, 1-methyl- (1MN)									
	c-C ₆ H ₁₂	→ ∞		0.77 ST			PL/LI-56	S' = Py; rel. to Φ _Δ (S') = 0.81; λ _{exc} = 355 nm.	91E297
	CH ₃ CN	→ ∞		0.30 ST			PL/LI-56	S' = DCA; rel. to Φ _Δ (S') = 2.0; λ _{exc} = 355 nm.	91E297
1.224 2-Naphthalenethione, 1,1-dimethyl-									
	C ₆ H ₆	(1.9–9.1) × 10 ⁻³	0.6*	0.7 ^T	0.7		PL/Ad-43,39	S' = BP; A = DPBF; rel. to Φ _Δ (S') = 0.4; meas. ϕ _{T(S)} = 1; λ _{exc} = 337 nm. Used P _S ^{O₂} = 0.	86A240
	C ₆ H ₆	(1.9–9.1) × 10 ⁻³	1.0 ^T	1.0			PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to Φ _Δ (S') = 1; meas. ϕ _{T(S)} = 1; λ _{exc} = 532 nm. Used P _S ^{O₂} = 0.	86A240
1.225 2-Naphthalenethione, 1,1,3-trimethyl-									
	C ₆ H ₆	(1.9–9.1) × 10 ⁻³	1.0 ^T	1.0			PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to Φ _Δ (S') = 1; meas. ϕ _{T(S)} = 1; λ _{exc} = 532 nm. Used P _S ^{O₂} = 0.	86A240
	C ₆ H ₆	(1.9–9.1) × 10 ⁻³	0.7*	0.8 ^T	0.8		PL/Ad-43,39	S' = BP; A = DPBF; rel. to Φ _Δ (S') = 0.4; meas. ϕ _{T(S)} = 1; λ _{exc} = 337 nm. Used P _S ^{O₂} = 0.	86A240

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.	
1.226	Norharman (β -Carboline)									
	D ₂ O pD = 7	air		0.03			PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.30$; $\lambda_{exc} = 337$ nm.	87F290	
1.227	1,3,5,7-Octatetraene, 1,8-diphenyl- (DPO)									
	c-C ₆ H ₁₂	air				1.9	PL/Ad-49,39	A = DPBF; AC = S; $\lambda_{exc} = 337$ nm; used $k_d = 5 \times 10^4$ s ⁻¹ , $k_A = 3.4 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\epsilon_T(AC) = 210000$ L mol ⁻¹ cm ⁻¹ at 437 nm. $\phi_T \approx 0$; $f_{\Delta}^S + f_T^O f_{\Delta}^T = 1.9$.	85F041	
	MeOH	air				1.4	PL/Ad-49,39	A = DPBF; AC = S; $\lambda_{exc} = 337$ nm; used $k_d = 1 \times 10^5$ s ⁻¹ , $k_A = 3.4 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\epsilon_T(AC) = 191000$ L mol ⁻¹ cm ⁻¹ at 430 nm. $\phi_T \approx 0$; $f_{\Delta}^S + f_T^O f_{\Delta}^T = 1.4$.	85F041	
1.228	2,4,6-Octatriene, 2,6-dimethyl- (Neoalloocimene)									
	C ₆ H ₆		1×10^{-2}		0.54*	0.45	PL/LI-60	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm. Measured $P_T^{O_2}$.	89A235	
1.229	3-Pentanethione, 2,2,4,4-tetramethyl- (DTBTK)									
	C ₆ H ₆		$(1.9-9.1) \times 10^{-3}$	0.81 ^T	0.85		PL/Ad-49,39	A = DPBF; AC = DPH; TA = DPH; meas. $\phi_T(S) = 0.95^e$; $\lambda_{exc} = 490$ nm; used $k_d = 4.0 \times 10^4$ s ⁻¹ , $k_A = 8.0 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\phi_T(AC) = 1$, $\epsilon_T(AC) = 100,000$ L mol ⁻¹ cm ⁻¹ at 426 nm.	85A300	
1.230	2-Pentanone									
	neat	O ₂		0.03			CP/Ac-14	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. Used $p_A = 1$.	79F184	
1.231	3-Pentanone									
	neat	O ₂		0.04			CP/Ac-14	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. Used $p_A = 1$.	79F184	
1.232	3-Pentanone, 2,4-dimethyl-									
	neat	O ₂		<0.0003			CP/Ac-14	A = 2,5-DMF; $\lambda_{exc} = 313$ nm. Used $p_A = 1$.	79F184	
1.233	Perylene (Per)									
	n-C ₆ H ₁₄	O ₂		1.3	≥ 0.65	≥ 0.65	CP/Ac-27	A = 2,5-DMF; $\lambda_{exc} = 366$ nm. $P_T^{O_2} = 1$; assumes $f_T^{O_2} = 1$; used $p_A = 1$.	79E643	
	C ₆ H ₆	air			0.88*	0.78	PL/LI-60	$S' = BP$; TD = BP; rel. to $f_{\Delta}^T(S') = 0.31$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$, cor. for energy transfer efficiency.	90A328	
	C ₆ H ₆	air			0.29		PL/LI-56	$S' = Pz$; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 532$ nm. $P_T^{O_2} = 1$; Assumed $f_T^{O_2} = 1$.	90A328	
	C ₆ H ₆	var.				0.56	1.3	PL/LI-38,56	$S' = Pz$; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = -0. P_T^{O_2} = 1$; Assumed $f_T^{O_2} = 1$, used $f_{\Delta}^T = 0.78$.	90A328
	C ₆ H ₆	O ₂ var.			~1		CP/Ac-14,38	$\lambda_{exc} = 435.8$ nm. A = DMA and DMBA; results consistent with $f_{\Delta}^S \ll f_{\Delta}^T$; assumed $f_T^{O_2} = 1$; meas. $\phi_{\Delta}^T(f_{\Delta}^T + f_{\Delta}^S) = 0.06$.	69F388	
1.234	Perylo[1,12-def]-1,3-dioxepin-5,11-dione, 6,12-dihydroxy-8,9-bis(2-hydroxypropyl)-7,10-dimethoxy- (Cercosporin)									
	C ₆ D ₆	air or O ₂		0.81			PL/LI-56	$S' = MPDME$; rel. to $\phi_{\Delta}(S') = 0.81$; $\lambda_{exc} = 532$ nm.	83R123	
	C ₆ D ₆	air ^a		0.81			CP/Ac-43	$S' = MPDME$; A = 2M2P; rel. to $\phi_{\Delta}(S') = 0.81$.	83R123	
1.235	Phenalen-1-one									
	C ₆ D ₆	air ^a		0.94 ^T	0.95		CP/LI-56,42	$S' = 9$ -Fluorenone; rel. to $\phi_{\Delta}(S') = 0.83$; meas. $\phi_T(S) = 1.0^d$; $\lambda_{exc} = 367$ nm; used $\phi_T(S) = 1^d$. Assumed $P_T^{O_2} = 1$.	91F023	
	C ₆ H ₆	air ^a		0.93 ^T	0.93		CP/LI-56,42	$S' = 9$ -Fluorenone; rel. to $\phi_{\Delta}(S') = 0.83$; meas. $\phi_T(S) = 1.0$; $\lambda_{exc} = 367$ nm. Assumed $P_T^{O_2} = 1$.	91F023	

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.235 Phenalen-1-one—Continued									
	CCl ₄	air ^a		0.95 ^T			CP/Ac-14	A = TME. D.E. Nicodem, R.S. da Silva, M.M. da Silva, personal communication.	91F023
	CD ₃ OD	air ^a		0.97 ^T	0.97		CP/LI-56,42	S' = RB; rel. to $\phi_{\Delta}(S') = 0.76$; meas. $\phi_T(S) = 1.0$. $P_T^{O_2} = 1$; meas. ratio of I_a at $\lambda_{exc}(S) = 367$ and $\lambda_{exc}(S') = 547$ nm.	91F023
1.236 Phenalen-1-one, 6-amino-									
	EtOH	air ^a		0.043			CP/Ac-14	A = DMA. Extrapolated to [DMA] → ∞.	85F501
1.237 Phenanthrene									
	c-C ₆ H ₁₂	→ ∞		0.44 ST			PL/LI-56	S' = Py; rel. to $\phi_{\Delta}(S') = 0.81$; $\lambda_{exc} = 355$ nm.	91E297
	n-C ₆ H ₁₄	air		0.3 ^T			PL/Ad-43	S' = An; A = DPBF; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 264$ nm. $P_T^{O_2} = 1$.	82E258
	C ₆ H ₆	O ₂	0.59	0.84			PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.70$. Measured $\phi_{\Delta} = 0.57$, $P_T^{O_2} = 0.97$ and ϕ_F .	88E449
	C ₆ H ₆	O ₂	0.62	0.88			PL/LI-56,42	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 0.70$. Measured $P_T^{O_2} = 0.97$.	88E449
	CH ₃ CN	→ ∞		0.24 ST			PL/LI-56	S' = DCA; rel. to $\phi_{\Delta}(S') = 2.0$; $\lambda_{exc} = 355$ nm.	91E297
	MeOH	O ₂	0.50				CP/Ac-14	A = 2,5-DMF; $\lambda_{exc} = 313$ nm.	78F016
1.238 Phenanthro[1,10,9,8-opqua]perylene-7,14-dione, 1,3,4,6,8,13-hexahydroxy-10,11-dimethyl- (Hypericin, HYP)									
	D ₂ O (mic)	air	0.72	1			PL/Ad-49,42	A = DPBF; AC = S; meas. $\phi_T(S) = 0.70$; $\lambda_{exc} = 640$ nm; used $k_d = 2.0 \times 10^4$ s ⁻¹ , $k_A = 1.0 \times 10^9$ L mol ⁻¹ s ⁻¹ , $\varepsilon_T(AC) = 19400$ L mol ⁻¹ cm ⁻¹ at 640 nm. BRJ 35 micelles.	88N343
	pH = ~7								
	EtOH	2.1×10^{-3}	0.73	1	0		PL/Ad-49,39	A = MDH; P = Mesodiphenylhelianthrene endoperoxide; AC = S; $\lambda_{exc} = 308$ nm; used $k_d = 8.3 \times 10^4$ s ⁻¹ , $k_A = 7.0 \times 10^9$ L mol ⁻¹ s ⁻¹ , $\phi_T(S) = 0.71$, $\varepsilon_T(AC) = 13100$ L mol ⁻¹ cm ⁻¹ at 630 nm.	87F541
1.239 Phenazine (Pz)									
	C ₆ H ₆	air or O ₂	0.88	1.0				See Table 4.	
	C ₆ H ₆	air	0.83 ^T	0.98			PL/LI-57,42	used $\phi_T(S) = 0.85$. S' = Pz in O ₂ , $\phi_{\Delta}(S') = 0.83$; $P_T^{O_2} = 1$.	90A328
	C ₆ H ₆	O ₂	0.83 ^T	0.98			PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0.85$. Measured $\phi_{\Delta} = 0.83$, $P_T^{O_2} = 1$ and ϕ_F .	88E449
	CH ₂ Cl ₂	O ₂	0.89 ^T				PL/Hp-52	$\lambda_{exc} = 354$ nm.	88Z155
	CHCl ₃	O ₂	0.84 ^T				PL/Hp-52	$\lambda_{exc} = 354$ nm.	88Z155
	i-octane/ H ₂ O (96:4) (mic)	O ₂	0.80				PL/Hp-53	$\lambda_{exc} = 355$ nm. Soln. cont. 0.1 mol L ⁻¹ AOT; meas. $\phi_F = <0.01$.	91N191
1.240 Phenothiazine									
	CH ₃ CN	O ₂	0.20	0.21			PL/LI-56,42	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; meas. $\phi_T(S) = 0.96^f$; $\lambda_{exc} = 355$ nm.	91A308
1.241 Phenothiazine, 2-acetyl-									
	CH ₃ CN	O ₂	~0.46				PL/LI-56	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 355$ nm.	91A308
1.242 Phenothiazine, 2-methoxy-									
	CH ₃ CN	O ₂	0.21				PL/LI-56	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 355$ nm.	91A308
1.243 Phenothiazine, 10-methyl-									
	CH ₃ CN	O ₂	0.19				PL/LI-56	S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 355$ nm.	91A308

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.244 Phenothiazine, 2-(trifluoromethyl)-									
	CH ₃ CN	O ₂	0.18				PL/LI-56	S' = Pz; rel. to ϕ _Δ (S') = 0.83; λ _{exc} = 355 nm.	91A308
1.245 Phenothiazinium, 3,7-bis(dimethylamino)- (Methylene Blue, MB)									
	C ₆ H ₅ CH ₂ OH	air	0.48 ^T				CP/Ac-14	A = DPBF. [O ₂] varied.	87F479
	C ₆ H ₅ CH ₃ / MeOH (99:1)	air	0.51 ^T				CP/Ac-14	A = DPBF. [O ₂] varied.	87F479
	CH ₂ Cl ₂	air ^a	0.57 ^T	~1			CP/Ac-14,42	A = 2,5-DMF; used ϕ _T (S) = 0.52. Assumed P _T ^{O₂} = 1.	737339
	CH ₃ CN	air	0.52 ^T				CP/Pa-14	A = DPF; P = 2,5-Diphenylfuran endoperoxide. Method adapted to allow for chain reaction.	87F440
	EtOH	air ^a	0.52 ^T	1			CP/Ac-14,42	A = DMA; used ϕ _T (S) = 0.52. Assumed P _T ^{O₂} = 1.	737339
	EtOH	9.9 × 10 ⁻³	0.50 ^T	~1			CP/Oc-43,39	A = TME; rel. to ϕ _Δ (S') = 0.50; used ϕ _T (S) = 0.52 ^f . Used P _T ^{O₂} = 1; rel. to MB ⁺ in MeOH.	84F191
	H ₂ O	air	0.60 ^T				CP/Ac-27	A = 2,5-DMF. Assumed f _r ^A = 2; P _T ^{O₂} = 1.	78F061
	H ₂ O	air ^a	0.52 ^T	1			CP/Ac-14,42	A = 2,5-DMF; used ϕ _T (S) = 0.52. Assumed P _T ^{O₂} = 1.	737339
	H ₂ O pH = 7.4	O ₂	0.39 ^T				CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to ϕ _Δ (S') = 0.75; λ _{exc} = 546 nm. RNO as monitor of P.	85R008
	H ₂ O (mic) pH = 7.4	O ₂	0.37 ^T				CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to ϕ _Δ (S') = 0.75; λ _{exc} = 546 nm. RNO as monitor of P; 0.23 mg/mL egg phosphatidylcholine.	85R008
	MeOD	~10 ⁻³	0.70*				PL/LI-56	S' = HP; rel. to ϕ _Δ (S') = 0.53; meas. ϕ _T (S) = 0.57; λ _{exc} = 347 nm. P _T ^{O₂} = 1; rel. to S' in EtOH; recalcd. using ϕ _Δ (S') = 0.64 [88Z155].	88A165
	MeOH	air	0.50 ^T				CP/Ac-14	A = DPBF.	90F157
	MeOH	air ^a	0.57 ^T				PL/LI-56	S' = Ery; rel. to ϕ _Δ (S') = 0.60.	87R138
	MeOH	air ^a	0.52 ^T				CP/Ac-14,42	A = DPBF; used ϕ _T (S) = 0.52. Assumed P _T ^{O₂} = 1.	737339
	MeOH	O ₂	0.52 ^T				CL/Ac-14	A = DPBF; λ _{exc} = 633 nm. Assumed f _Δ ^T = 1.	87E690
	MeOH/ C ₆ H ₅ CH ₃ (97:3)	air	0.48 ^T				CP/Ac-14	A = DPBF. [O ₂] varied.	87F479
	2-Methoxy- ethanol	O ₂	0.43 ^T				CL/Ac-14	A = DPBF; λ _{exc} = 633 nm. Assumed f _Δ ^T = 1.	87E690
	Propylene carbonate	O ₂	0.35 ^T				CL/Ac-14	A = DPBF; λ _{exc} = 633 nm. Assumed f _Δ ^T = 1.	87E690
1.246 Phenothiazinium, 3,7-diamino- (Thionine)									
	CH ₃ CN	air	0.58 ^T				CP/Pa-14	A = DPF; P = 2,5-Diphenylfuran endoperoxide. Method adapted to allow for chain reaction.	87F440
	H ₂ O	air ^a	0.58 ^T	1			CP/Ac-43,42	S' = MB ⁺ ; A = 2,5-DMF; rel. to ϕ _Δ (S') = 0.52; used ϕ _T (S) = 0.55. Assumed P _T ^{O₂} = 1.	737339
1.247 Pivalothiophenone									
	C ₆ H ₆	air	1.0 ^T	1.0			PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to ϕ _Δ (S') = 1; meas. ϕ _T (S) = 1.0; λ _{exc} = 532 nm.	87A340
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used ϕ _T (S) = 1. [S] → 0, ϕ _Δ = 0.94 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.248	Pivalothiophenone, 4'-chloro-								
	C ₆ H ₆	air ^a		1.1 ^T	1		PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to Φ _Δ (S') = 1; meas. Φ _T (S) = 1.0; λ _{exc} = 532 nm.	87A340
1.249	Pivalothiophenone, 4'-fluoro-						PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to Φ _Δ (S') = 1; meas. Φ _T (S) = 1.0; λ _{exc} = 532 nm.	87A340
1.250	Pivalothiophenone, 4'-methoxy-						PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to Φ _Δ (S') = 1; meas. Φ _T (S) = 1.0; λ _{exc} = 532 nm.	87A340
	C ₆ H ₆	air		0.87 ^T	0.87		CP/Ac-14,42	A = DTBF; used Φ _T (S) = 1. [S] → 0, Φ _Δ = 0.86 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.251	1,2-Propanedione, 1-phenyl-						CP/Pa-14	A = 1,2-Dimethylcyclohexene; λ _{exc} = 366 nm. P = 3-Hydroxy-1,2-dimethylcyclohexene, 2-Hydroxy-2-methyl-1-methylenecyclohexane, and 3-Hydroxy-2,3-dimethylcyclohexene.	85F153
1.252	Pseudoisopsoralen (Furo[3,2- <i>h</i>][1]benzopyran-8-one)						PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.03; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
	C ₆ H ₆	O ₂		0.01 ^T	0.33		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.05; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121 86E160
1.253	Pseudopsoralen (Furo[2,3- <i>g</i>][1]benzopyran-6-one)						PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.51; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121
1.254	Pseudopsoralen, 3-carbethoxy-						PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.51; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121 86E160
1.255	Psoralen (Furo[3,2- <i>g</i>][1]benzopyran-7-one)						PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.03; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121 86E160
	C ₆ H ₆	O ₂		0.01 ^T	0.33		MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7; λ _{exc} = 652 nm.	83E813
	CCl ₄	air		0.0055			CP/Ac-44	S' = HP; A = Subtilisin Carlsberg; rel. to Φ _Δ (S') = 0.43; λ _{exc} = 365 nm.	87R015
	D ₂ O pD = 7.0	O ₂		0.18			PL/LI-56	S' = RF; rel. to Φ _Δ (S') = 0.3; λ _{exc} = 337 nm.	86E959 86F144
	D ₂ O	air		0.04			PL/LI-56	S' = RF; rel. to Φ _Δ (S') = 0.4; λ _{exc} = 337 nm.	86E959 86F144
	MeOH	air		0.05					
1.256	Psoralen, 3-carbethoxy-						PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.30; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121 86E160
	C ₆ H ₆	O ₂		0.34*			CP/Pa-43,42	S' = Ang; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.02 ^b ; λ _{exc} = 365 nm; used Φ _T (S) = 0.32 ^d . RNO as monitor of P; P _T ^{O₂} = 1.	84F111
	H ₂ O pH = 7.3	O ₂		0.3 ^T	1				
1.257	Psoralen, 5,8-dimethoxy-						PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.04; λ _{exc} = 355 nm. P _T ^{O₂} = 1.	88E121 86E160
	C ₆ H ₆	O ₂		0.005*					
				0.004 ^T	0.10				
1.258	Psoralen, 5-methoxy-						PL/LI-56	S' = BP; rel. to Φ _Δ (S') = 0.29; λ _{exc} = 308 nm. No emission detected.	91F273
	C ₆ H ₆	air		0					

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.258 Psoralen, 5-methoxy—Continued									
	C ₆ H ₆	O ₂		0.02 ^T	0.29		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.07$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121 86E160
	D ₂ O pD ≤ 7.0	O ₂		0.013			CP/Ac-44	$S' = HP$; A = Subtilisin Carlsberg; rel. to $\phi_{\Delta}(S') = 0.43$; $\lambda_{exc} = 365$ nm.	87R015
1.259 Psoralen, 5-methoxy-, DNA complex									
	D ₂ O/EtOH (97.5:2.5)	O ₂					CP/Ac-43	$S' = 5\text{-MOP}$; A = DOPA; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 3.2$; $\lambda_{exc} = 313$ nm. Soln. contg. 0.1% DNA, 2×10^{-3} mol L ⁻¹ NaCl.	81F482
	D ₂ O/EtOH (97.5:2.5)	O ₂					CP/Ac-43	$S' = 5\text{-MOP}$; A = DOPA; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 3.6$; $\lambda_{exc} = 335$ nm. Soln. contg. 0.1% DNA, 2×10^{-3} mol L ⁻¹ NaCl.	81F482
1.260 Psoralen, 8-methoxy- (8-MOP)									
	C ₆ H ₆	air		<0.02			PL/LI-56	$S' = BP$; rel. to $\phi_{\Delta}(S') = 0.29$; $\lambda_{exc} = 308$ nm. No emission detected.	91F273
	C ₆ H ₆	O ₂		0.005* 0.004 ^T	0.4		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.01$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121 86E160
	CCl ₄	air		0.002 ^T			MP/LI-56	$S' = TPP$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 652$ nm.	83E813
	CCl ₄	air ^a		<0.03			MP/LI-56	$S' = An$. Used $\phi_T(An) = 0.7$.	82F071
	D ₂ O pD = 7.0	O ₂		0.035			CP/Ac-44	$S' = HP$; A = Subtilisin Carlsberg; rel. to $\phi_{\Delta}(S') = 0.43$; $\lambda_{exc} = 365$ nm.	87R015
	D ₂ O	air		0.009			PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.3$; $\lambda_{exc} = 337$ nm.	86E959 86F144
	H ₂ O	air		-0.0007			CP/Ac-14	$\Delta = S$; $\lambda_{exc} = 313$ nm.	83F188
	H ₂ O/EtOH (1:1)	air ^a		0.03 ^T			PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.5$; $\lambda_{exc} = 337$ nm.	86F144
	MeOH	air		0.02 ^T	~0.7		PL/LI-56,42	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.4$; $\lambda_{exc} = 337$ nm; used $\phi_T(S) = 0.03^d$.	86E959 86F144
1.261 Psoralen, 4,5',8-trimethyl-									
	C ₆ H ₆	O ₂		0.09* 0.08 ^T	0.38		PL/LI-56,42	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.21$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$.	88E121 86E160
1.262 Pyranthrene									
	C ₆ H ₅ CH ₃	1.2×10^{-3}				0.97	PL/Ad,St-48	$A = Rub$; meas. $\phi_T(S) = 0.55$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$; used $\epsilon_T(S) = 14,000$ L mol ⁻¹ cm ⁻¹ at λ_{max} ; $n_{\Delta} = 0.97$.	83F075
	C ₆ H ₅ CN	1.2×10^{-3}				0.45	PL/Ad,St-48	$A = Rub$; meas. $\phi_T(S) = 0.52$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$; used $\epsilon_T(S) = 8,000$ L mol ⁻¹ cm ⁻¹ at λ_{max} ; $n_{\Delta} = 0.45$.	83F075
1.263 Pyrene (Py)									
	Hexanes	O ₂		0.86			CP/Ac-14	$A = 2,5\text{-DMF}$; $\lambda_{exc} = 313$ nm.	78F016
	n-C ₆ H ₁₄	O ₂		0.79			CP/Ac-27	$A = 2,5\text{-DMF}$; $\lambda_{exc} = 313$ nm. $P_T^{O_2} = 1$; used $p_A = 1$.	79E643
	C ₆ H ₅ CH ₃	1.2×10^{-3}		1.9			PL/LI-56	$S' = PdMPDME$; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.	82E010
	C ₆ D ₆	1.2% O ₂ in N ₂			0.65		PR/LI-60	$S' = Np$; TD = BP; rel. to $f_{\Delta}^T(S') = 0.55$. $P_T^{O_2} = 1$; cor. for energy transfer efficiency.	90A328
	C ₆ H ₆	air		0.71			PL/LI-56	$S' = Pz$; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 532$ nm. $P_T^{O_2} = 1$	90A328

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.263 Pyrene (Py)—Continued									
	C ₆ H ₆	O ₂		0.74 ST			PL/Hp-52	$\lambda_{\text{exc}} = 355 \text{ nm}$. Measured $\phi_{\Delta} = 0.74$, $P_T^{O_2} = 1$ and $\phi_T^{O_2} = 0.96$ and ϕ_F . Authors assume $f_{\Delta}^S = 0$ and use $\phi_T(S) = 0.96$ to give $f_{\Delta}^T = 0.77$ but $P_S^{O_2} = 0.95$ so values of f_{Δ}^S and f_{Δ}^T are indeterminable.	88E449
	C ₆ H ₆	O ₂		0.74 ST			PL/LI-56	$S' = P_z$; rel. to $\phi_{\Delta}(S') = 0.83$. Measured $P_T^{O_2} = 1$ and $\phi_T^{O_2} = 0.96$. Authors assume $f_{\Delta}^S = 0$ and use $\phi_T(S) = 0.96$ to give $f_{\Delta}^T = 0.77$ but $P_S^{O_2} = 0.95$ so values of f_{Δ}^S and f_{Δ}^T are indeterminable.	88E449
	C ₆ H ₆	var.			0.13	0.78	PL/LI-38,56	$S' = P_z$; rel. to $\phi_{\Delta}(S') = 0.83$; meas. $\phi_T(S) = 0.29$. $P_T^{O_2} = 1$; Assumed $f_T^{O_2} = 1$, used $f_{\Delta}^T = 0.65$.	90A328
	C ₆ H ₆	$1.9 \times 10^{-3}, 9.0 \times 10^{-3}$	1.5 ST	-1	-0.5	1.5	CL/Ac-49,38	$S' = A = \text{DMA}$; rel. to $\phi_{\Delta}(S') = 1.0$. Assumed $f_T^{O_2} = 1$.	83F116
	CH ₃ CN	$\rightarrow \infty$	0.42 ST				PL/LI-56	$S' = \text{DCA}$; rel. to $\phi_{\Delta}(S') = 2.0$; $\lambda_{\text{exc}} = 355 \text{ nm}$.	91E297
	H ₂ O (mic)	O ₂	0.9				CP/Ac-14	A = DPBF; $\lambda_{\text{exc}} = 338 \text{ nm}$. [SDS] = 0.1 mol L ⁻¹ .	78A174
	H ₂ O (mic)	O ₂	1.0				CP/Ac-14	A = DPBF; $\lambda_{\text{exc}} = 338 \text{ nm}$. [DTAC] = 0.1 mol L ⁻¹ .	78A174
	MeOH	O ₂	0.6				CP/Ac-14	A = DPBF; $\lambda_{\text{exc}} = 338 \text{ nm}$.	78A174
	MeOH	O ₂	0.76				CP/Ac-14	A = 2,5-DMF; $\lambda_{\text{exc}} = 313 \text{ nm}$. Assumed $f_{\Delta}^T = 1$; [S] → 0.	78F016
	MeOH	O ₂	0.60				CP/Oc-14	A = 2,5-DMF; $\lambda_{\text{exc}} = 283-373 \text{ nm}$.	70F735
	MeOH	O ₂	0.63				CP/Oc-14	A = TME; $\lambda_{\text{exc}} = 283-373 \text{ nm}$.	70F735
1.264 Pyrene, excimer									
	C ₆ H ₆	$1.9 \times 10^{-3}, 9.0 \times 10^{-3}$	0.8		0.8		CL/Ac-49,38	$S' = A = \text{DMA}$; rel. to $\phi_{\Delta}(S') = 1.0$. Assumed $f_T^{O_2} = 1$.	83F116
	MeOH	O ₂	0.46				CP/Ac-14	A = 2,5-DMF; $\lambda_{\text{exc}} = 313 \text{ nm}$. Assumed $f_{\Delta}^T = 1$; [S] → ∞.	78F016
1.265 1-Pyrenecarboxaldehyde									
	c-C ₆ H ₁₂	O ₂		0.87 ^T	1		PL/Ad-49,42	A = DPBF; AC = BP; $\lambda_{\text{exc}} = 337 \text{ nm}$; used $k_d = 5.0 \times 10^4 \text{ s}^{-1}$, $k_A = 3.4 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\phi_T(S) = 0.78^f$, $\phi_T(AC) = 1$, $\epsilon_T(AC) = 7600 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 532 nm.	84F005
	C ₆ H ₆	O ₂		0.68 ^T	1		PL/Ad-49,42	A = DPBF; AC = BP; $\lambda_{\text{exc}} = 337 \text{ nm}$; used $k_d = 4.0 \times 10^4 \text{ s}^{-1}$, $k_A = 8.0 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\phi_T(S) = 0.57^f$, $\phi_T(AC) = 1$, $\epsilon_T(AC) = 7600 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 532 nm.	84F005
1.266 Pyridine, 2,6-bis(2-thienyl)-									
	CDCl ₃	$\sim 1.16 \times 10^{-2}$	0.53 ^T				PL/Ad,AcI-49	A = DPBF; AC = BP; $\lambda_{\text{exc}} = 337 \text{ nm}$; used $\phi_T(AC) = 1$, $\epsilon_T(AC) = 7640 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 525 nm. $p_A = 1$.	87E410
1.267 α-Quaterthienyl									
	EtOH	O ₂		-0.2 ^T	-1		PL/Ac-14,42	A = DPBF; meas. $\phi_T(S) = 0.20^f$; $\lambda_{\text{exc}} = 353 \text{ nm}$. $P_T^{O_2} = 1$, $p_A = 0.75$.	85N020
1.268 Quinoline									
	MeOH	O ₂		0.09			CP/Oc-14	A = 2,5-DMF; $\lambda_{\text{exc}} = 283-373 \text{ nm}$.	70F735
	MeOH	O ₂		0.10			CP/Oc-14	A = TME; $\lambda_{\text{exc}} = 283-373 \text{ nm}$.	70F735
1.269 Quinoline-2-carboxylic acid, 4-hydroxy- (Kynurenic acid)									
	D ₂ O pD = 7	air		0.16			PL/LI-56	$S' = RF$; rel. to $\phi_{\Delta}(S') = 0.30$; $\lambda_{\text{exc}} = 337 \text{ nm}$.	87F290

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.269 Quinoline-2-carboxylic acid, 4-hydroxy- (Kynurenic acid)—Continued									
	H ₂ O pH = 7.4	air		0.42			CP/Pa-43	S' = RB; A = Im; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 332 nm. RNO as monitor of P.	91R141
1.270 Quinoxaline									
	C ₆ H ₆	air		~0.91	~0.91		PL/Hp-52,42	λ _{exc} = 337 nm. Measured φ _T ; assumed P _T ^{O₂} = 1, [S] > 5 × 10 ⁻⁴ mol L ⁻¹ , Φ _Δ = 0.73 extrapolating [S] → 0.	91F198
1.271 13-(Z)-Retinal									
	CCl ₄	air		0.6			MP/LI-56	S' = PPDME; rel. to Φ _Δ (S') = 0.8; λ _{exc} = 385 nm.	78F700
1.272 (all-E)-Retinal									
	c-C ₆ H ₁₂	air		1			PL/Ad-49,39	A = DPBF; AC = S; λ _{exc} = 337 nm; used k _d = 5 × 10 ⁴ s ⁻¹ , k _A = 3.4 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ε _T (AC) not given.	85F041
	c-C ₆ H ₁₂	O ₂		0.66 ^T	~1		PL/Ad-49,42	A = DPBF; AC = BP; λ _{exc} = 337 nm; used k _d = 5.0 × 10 ⁴ s ⁻¹ , k _A = 3.4 × 10 ⁸ L mol ⁻¹ s ⁻¹ , φ _T (S) = 0.4–0.7 ^f , φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	84F005
	CCl ₄	air		0.6 ^T			MP/LI-56	S' = PPDME; rel. to Φ _Δ (S') = 0.8; λ _{exc} = 385 nm.	78F700
	EtOH	O ₂		0.096 ^T			CP/Ac-15	A = 2,5-DMF; λ _{exc} = 365 nm.	78F201
	MeOH	air		0.13 ^T	1		PL/Ad-49,39	A = DPBF; λ _{exc} = 337 nm; used k _d = 1 × 10 ⁵ s ⁻¹ , k _A = 8 × 10 ⁸ L mol ⁻¹ s ⁻¹ , φ _T (S) = 0.12 ^c . ε _T (AC) not given.	85F041
	MeOH	O ₂		0.20 ^T	~1		PL/Ad-49,42	A = DPBF; AC = BP; λ _{exc} = 337 nm; used k _d = 1.0 × 10 ⁵ s ⁻¹ , k _A = 8.1 × 10 ⁸ L mol ⁻¹ s ⁻¹ , φ _T (S) = 0.12 ^f , φ _T (AC) = 1, ε _T (AC) = 7600 L mol ⁻¹ cm ⁻¹ at 532 nm.	84F005
1.273 (all-E)-Retinol									
	n-C ₆ H ₁₄	air		0.78			PL/Ad-61	S' = NMTA; A = DPBF; TD = NMTA; rel. to f _Δ ^T (S') = 1.1; λ _{exc} = 337 nm. P _T ^{O₂} = 1; cor. for S quenching.	85E190
	n-C ₆ H ₁₄	1.4 × 10 ⁻⁴		0.25			PL/Ad-43	S' = An; A = DPBF; TD = Triphenylene; rel. to Φ _Δ (S') = 0.81; λ _{exc} = 254 nm. Used P _T ^{O₂} = 1, f _Δ ^T (S') = 1.	83E084
	C ₆ H ₆	var			0.42		PL/Ad-49,39	A = DPBF; AC = BP; λ _{exc} = 337 nm; used ε _T (AC) = 7.630 L mol ⁻¹ cm ⁻¹ at 532 nm. P _T ^{O₂} = 1; measured f _T ^{O₂} = 0.36, f _Δ ^S + (f _Δ ^T - φ _T)f _T ^{O₂} = 0.71, used f _Δ ^T = 0.75.	85E190
	C ₆ H ₆	air		0.75			PL/Ad-61	S' = NMTA; A = DPBF; TD = NMTA; rel. to f _Δ ^T (S') = 0.92; λ _{exc} = 337 nm. P _T ^{O₂} = 1; cor. for S quenching.	85E190
	MeOH	var.			0.30		PL/Ad-49,39	A = DPBF; AC = BP; λ _{exc} = 337 nm. P _T ^{O₂} = 1; measured f _T ^{O₂} = 0.47, f _Δ ^S + (f _Δ ^T - φ _T)f _T ^{O₂} = 0.68, used f _Δ ^T = 0.72.	85E190
	MeOH	air		0.78			PL/Ad-61	S' = Ru(bpy) ₃ ²⁺ ; A = DPBF; TD = Ru(bpy) ₃ ²⁺ ; rel. to f _Δ ^T (S') = 0.92; λ _{exc} = 337 nm. P _T ^{O₂} = 1; cor. for S quenching.	85E190
1.274 Riboflavin (RF)									
	D ₂ O	air ^a		0.3			MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8. Reference value in CCl ₄ .	82Z317
	H ₂ O pH = 7.4	air		0.49			CP/Pa-43	S' = RB; A = Im; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 445 nm. RNO as monitor of P.	91R141

Table 1, Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.274 Riboflavin (RF)—Continued									
	H ₂ O/EtOH (1:1)	air ^a	0.5				PL/LI-56	S' = RF; rel. to Φ _Δ (S') = 0.3 ^b ; λ _{exc} = 337 nm. Rel. to RF in D ₂ O.	86F144
	MeOD	~10 ⁻³	0.58*	0.48	0.79		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.53; meas. Φ _T (S) = 0.61; λ _{exc} = 347 nm. P _T ^{O₂} = 1; rel. to S' in EtOH; recalcd. using Φ _Δ (S') = 0.64 [88Z155].	88A165
	MeOH	air ^a	0.47				PL/LI-56	S' = Ery; rel. to Φ _Δ (S') = 0.60.	87R138
	MeOH	air ^a	0.4				PL/LI-56	S' = RF; rel. to Φ _Δ (S') = 0.3 ^b ; λ _{exc} = 337 nm. Rel. to RF in D ₂ O.	86F144
1.275 Riboflavin 5'-dihydrogen phosphate (FMN)									
	H ₂ O pH = 7.4	air	0.49				CP/Pa-43	S' = RB; A = Im; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 445 nm. RNO as monitor of P.	91R141
1.276 Riboflavin-2',3',4',5'-tetraacetate									
	CH ₃ CN	O ₂	0.65				CP/Pa-14	λ _{exc} = 442 nm. A = Oleic, linoleic or linolenic acid; hydroperoxide formation.	89F484
1.277 Rubicene (Benz(a)indeno(1,2,3-<i>hi</i>)aceanthrylene)									
	C ₆ H ₆	air	0.31				CP/Ac-14	A = MDH. f _T ^A = 0.30.	89E223
	C ₆ H ₆	air	0.24				CP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.67.	88E609
	CCl ₄	air	0.30				CP/Ac-14	A = MDH. f _T ^A = 0.30.	89E223
	CH ₃ CN	air	0.18				CP/Ac-14	A = MDH. f _T ^A = 0.30.	89E223
	CHCl ₃	air	0.31				CP/Ac-14	A = MDH. f _T ^A = 0.30.	89E223
	CS ₂	air	0.46				CP/Ac-14	A = MDH. f _T ^A = 0.30.	89E223
	ClCF ₂ CCl ₂ F	air	0.23				CP/Ac-14	A = MDH. f _T ^A = 0.30.	89E223
1.278 Rubrene (Tetracene, 5,6,11,12-tetraphenyl-, Rub)									
	c-C ₆ H ₁₂	O ₂	0.95			1.4	CP/Ac-14,38	S' = A = DPBF; λ _{exc} = 546 nm. P _T ^{O₂} = 1; Assumed f _T ^{O₂} = 1; used P _S ^{O₂} = 0.67 and Φ _T = 0.	79E611
	n-C ₆ H ₁₄	O ₂	1.1			1.5	CP/Ac-14,38	S' = A = DPBF; λ _{exc} = 546 nm. P _T ^{O₂} = 1; Assumed f _T ^{O₂} = 1; used P _S ^{O₂} = 0.78 and Φ _T = 0.	79E611
	n-C ₆ H ₁₄	O ₂	1.2	≥0.54	≥0.54		CP/Ac-27	A = 2,5-DMF; λ _{exc} = 313 nm. P _T ^{O₂} = 1; assumes f _T ^{O₂} = 1; used p _A = 1.	79E643
	i-octane	O ₂	1.1			1.4	CP/Ac-14,38	S' = A = DPBF; λ _{exc} = 546 nm. P _T ^{O₂} = 1; Assumed f _T ^{O₂} = 1; used P _S ^{O₂} = 0.76 and Φ _T = 0.	79E611
	C ₆ H ₅ CH ₃	air				2	PL/Ad,St-48	A = S; λ _{exc} = 530 nm; used k _d = 3.2 × 10 ⁴ s ⁻¹ , k _A = 2.5 × 10 ⁷ L mol ⁻¹ s ⁻¹ , ε _T (S) = 26000 L mol ⁻¹ cm ⁻¹ at 500 nm. n _Δ = 2.	82E072
	C ₆ H ₅ CH ₃	(0.6-1.2) × 10 ⁻³					CP/Ac-14,38	A = S; λ _{exc} = 436 nm. Measured f _Δ ^T + f _Δ ^S f _T ^{O₂} = 1.6	756223
	C ₆ H ₅ CH ₃	O ₂ (10 atm)	1.8				PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	82E010
	C ₆ H ₆	(0.6-1.2) × 10 ⁻³					CP/Ac-14,38	A = S; λ _{exc} = 436 nm. Measured f _Δ ^T + f _Δ ^S f _T ^{O₂} = 1.7.	756223
	C ₆ H ₆	1.8 × 10 ⁻³	0.36				CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50; λ _{exc} = 535, 546, 577 nm. rel. to S' in MeOH.	83F608
	C ₆ H ₆	1.9 × 10 ⁻³	0.30				CP/Ac-46	S' = BP; A = S; rel. to Φ _Δ (S') = 0.54; λ _{exc} = 365 nm. Assumed f _T ^{O₂} = 1.	81F364
	C ₆ H ₆	air	0.44				CP/Ac-14	A = S; λ _{exc} = 365 nm.	81F017
	C ₆ H ₆	air ^a	0.07 ^T			1.9	CP/Ac-14,40	A = S. Assumed f _T ^{O₂} = 1; f _Δ ^T + f _Δ ^S from Φ _Δ when P _S ^{O₂} = 1; Φ _T f _Δ ^T = Φ _Δ when P _S ^{O₂} = 0.	767422
	C ₆ H ₆	air ^a		≥0.67	≥1.7		CP/Ac-14,38	A = S. Assumed f _Δ ^T = 1 and f _T ^{O₂} = 1.	76F905
	C ₆ H ₆	4.6 × 10 ⁻³	0.64				CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50; λ _{exc} = 535, 546, 577 nm. rel. to S' in MeOH.	83F608

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.278 Rubrene (Tetracene, 5,6,11,12-tetraphenyl-, Rub)—Continued									
	C ₆ H ₆	6.5 × 10 ⁻³	1.0				CP/Pa-14	A = S; P = 5,12-Dihydro-5,6,11,12-tetraphenyl-5,12-epidioxytetracene; λ_{exc} = 546 nm.	337002
	C ₆ H ₆	O ₂ var.					CP/Ac-14,38	A = S; λ_{exc} = 435.8 nm. $\phi_T f_{\Delta}^T / (f_{\Delta}^T + f_{\Delta}^S) = 0.04 \pm 0.02$.	68F286
	C ₆ H ₆	9.1 × 10 ⁻³	0.90				CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to $\phi_A(S') = 0.50$; λ_{exc} = 535, 546, 577 nm. rel. to S' in MeOH; $\phi_T f_{\Delta}^T = 0.03 (P_S^{O_2} = 0); f_{\Delta}^S + f_{\Delta}^T f_T^{O_2} = 1.5$	83F608
	C ₆ H ₆	9.0 × 10 ⁻³	0.88			1.4	CP/Ac-46	S' = BP; A = S; rel. to $\phi_A(S') = 0.90$; λ_{exc} = 365 nm; used $P_T(S) = 0.03$. Assumed $f_T^{O_2} = 1$.	81F364
	C ₆ H ₆	O ₂	0.91			1.5	CP/Ac-14,38	S' = A = DPBF; λ_{exc} = 546 nm. $P_T^{O_2} = 1$; Assumed $f_T^{O_2} = 1$; used $P_S^{O_2} = 0.62$ and $\phi_T = 0$.	79E611
	C ₆ H ₆	O ₂	1 ST				CP/Ac-14	A = S; λ_{exc} = 366, 436, 546 nm.	34F004
	C ₆ H ₆	→ ∞	1.2 ST			~1.2	CP/Ac-14,38	A = DPBF; λ_{exc} = 545 nm. Assumed $f_T^{O_2} = 1$, extrapolated $\phi_{\Delta} = 1.2$ when [O ₂] → ∞.	78E036
	CH ₃ COCH ₃	O ₂	0.88			1.5	CP/Ac-14,38	S' = A = DPBF; λ_{exc} = 546 nm. $P_T^{O_2} = 1$; Assumed $f_T^{O_2} = 1$; used $P_S^{O_2} = 0.58$ and $\phi_T = 0$.	79E611
	CHCl ₃	(0.3-5) × 10 ⁻³					CP/Ac-14,38	A = S; λ_{exc} = 436 nm. Assumed $f_T^{O_2} = 1, f_{\Delta}^T = f_{\Delta}^S = 1$, measured $f_{\Delta}^T + f_{\Delta}^S f_T^{O_2} = 2.1$; $\phi_{\Delta} = 0.11$ when $P_S^{O_2} = 0$.	756223
	C ₆ H ₅ Cl ₃	(0.5-2.5) × 10 ⁻³					CP/Ac-14,38	A = S; λ_{exc} = 436 nm. Measured $f_{\Delta}^T + f_{\Delta}^S f_T^{O_2} = 1.7$.	756223
	CCl ₄	(0.3-3) × 10 ⁻³					CP/Ac-14,38	A = S; λ_{exc} = 436 nm. Measured $f_{\Delta}^T + f_{\Delta}^S f_T^{O_2} = 1.9$.	756223
	CS ₂	(0.5-1) × 10 ⁻³					CP/Ac-14,38	A = S; λ_{exc} = 436 nm. Measured $f_{\Delta}^T + f_{\Delta}^S f_T^{O_2} = 2.1$	756223
	CS ₂	(2-9) × 10 ⁻³		1	1	2	CP/Ac-14,38	A = DPBF; λ_{exc} = 546 nm. Assumed $f_T^{O_2} = 1$, $\phi_T f_{\Delta}^T = 0.21$.	84F197
1.279 (E)-Stilbene									
	C ₆ H ₆	air ^a		~0.08			PR/βCb-59	S' = BP; rel. to $f_{\Delta}^T(S') = 0.35$. Measured $f_{\Delta}^T(S) / f_{\Delta}^T(S') = 0.23$.	76F904
	C ₆ H ₆	O ₂		0.21*			PL/LI-60	S' = 2-ACN; rel. to $f_{\Delta}^T(S') = 0.7$; λ_{exc} = 355 nm. $P_T^{O_2} > 0.96$.	85F291
	C ₆ H ₆	O ₂		0.18			PL/LI-60	S' = BP; rel. to $f_{\Delta}^T(S') = 0.29$; λ_{exc} = 355 nm. $P_T^{O_2} > 0.96$.	85F291
1.280 Sydnone, 3,4-diphenyl-									
	C ₆ H ₆	air		0.78			PL/Ad,TDt-62	A = DPBF; AC = TD = NMTA; λ_{exc} = 485 nm; used $k_d = 4.0 \times 10^4 \text{ s}^{-1}$, $k_A = 8.0 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(AC) = 9300 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 520 nm. $P_T^{O_2} = 0.82$.	86A380
1.281 Sydnone, 3-(4-methylphenyl)-									
	C ₆ H ₆	air		0.38			PL/Ad,TDt-62	A = DPBF; AC = TD = CQ; λ_{exc} = 485 nm; used $k_d = 4.0 \times 10^4 \text{ s}^{-1}$, $k_A = 8.0 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(AC) = 900 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 700 nm. $P_T^{O_2} = 0.89$.	86A380
1.282 Sydnone, 3-(4-methylphenyl)-4-phenyl-									
	C ₆ H ₆	air		0.88			PL/Ad,TDt-62	A = DPBF; AC = TD = NMTA; λ_{exc} = 485 nm; used $k_d = 4.0 \times 10^4 \text{ s}^{-1}$, $k_A = 8.0 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$, $\epsilon_T(AC) = 9300 \text{ L mol}^{-1} \text{ cm}^{-1}$ at 520 nm. $P_T^{O_2} = 0.78$.	86A380

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.283	Syndnone, 3-phenyl-								
	C ₆ H ₆	air		0.80			PL/Ad,TDt-62	A = DPBF; AC = TD = CO; λ _{exc} = 485 nm; used k _d = 4.0 × 10 ⁴ s ⁻¹ , k _A = 8.0 × 10 ⁸ L mol ⁻¹ s ⁻¹ , ε _T (AC) = 900 L mol ⁻¹ cm ⁻¹ at 700 nm. P _T ^{O₂} = 0.88.	86A380
1.284	p-Terphenyl								
	C ₆ H ₆	O ₂		0.9			PR/Ad,St-49,42	A = DPBF; used φ _T (S) = 0.11, ε _T (S) = 90,000 L mol ⁻¹ cm ⁻¹ at 460 nm. Measured G(³ S*).	78E263
1.285	α-Terthienyl								
	C ₆ D ₆	(1.9-9.1) × 10 ⁻³	0.67 ^T				PL/LI-56	S' = Np; rel. to φ _Δ (S') = 0.54; λ _{exc} = 355 nm.	90E691
	C ₆ D ₆	(1.9-9.1) × 10 ⁻³	0.84 ^T				PL/LI-56	S' = Ac; rel. to φ _Δ (S') = 0.84; λ _{exc} = 355 nm.	90E691
	C ₆ H ₆	air	0.75 ^T	~0.7 ^T			PL/LI-56,42	S' = Pz; rel. to φ _Δ (S') = 0.83; meas. φ _T (S) = ~0.9-1; λ _{exc} = 337 nm.	90F355
	CD ₃ CN	(1.7-8.1) × 10 ⁻³	0.79 ^T				PL/LI-56	S' = Ac; rel. to φ _Δ (S') = 0.84; λ _{exc} = 355 nm.	90E691
	CD ₃ OD	air	0.67 ^T	~0.7 ^T			PL/LI-56,42	S' = An; rel. to φ _Δ (S') = 0.55; meas. φ _T (S) = ~0.9-1.0; λ _{exc} = 337 nm.	90F355
	CD ₃ OD	air	0.70 ^T	~0.7 ^T			PL/LI-56,42	S' = Ru(bpy) ₃ ²⁺ ; rel. to φ _Δ (S') = 0.86; meas. φ _T (S) = ~0.9-1; λ _{exc} = 337 nm.	90F355
	CDCl ₃	air	0.73 ^T	~0.7 ^T			PL/LI-56,42	S' = Pz; rel. to φ _Δ (S') = 0.84; meas. φ _T (S) = ~0.9-1; λ _{exc} = 337 nm.	90F355
	CDCl ₃	~1.16 × 10 ⁻²	0.86 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used φ _T (AC) = 1, ε _T (AC) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. p _A = 1.	87E410
	CH ₂ Cl ₂	air	0.75 ^T	~0.7 ^T			PL/LI-56,42	S' = Pz; rel. to φ _Δ (S') = 0.89; meas. φ _T (S) = ~0.9-1; λ _{exc} = 337 nm.	90F355
	CH ₃ CN	air	0.68 ^T	~0.7 ^T			PL/LI-56,42	S' = Ac; rel. to φ _Δ (S') = 0.82; meas. φ _T (S) = ~0.9-1; λ _{exc} = 337 nm.	90F355
	CHCl ₃	air	0.67 ^T	~0.7 ^T			PL/LI-56,42	S' = Pz; rel. to φ _Δ (S') = 0.84; meas. φ _T (S) = ~0.9-1; λ _{exc} = 337 nm.	90F355
	EtOH	O ₂	-0.2 ^T	-1			PL/Ac-14,42	A = DPBF; meas. φ _T (S) = 0.20 ^f ; λ _{exc} = 353 nm. P _T ^{O₂} = 1, p _A = 0.75.	85N020
	EtOH/H ₂ O (95:5)	air	0.22 ^T	-1			CP/Ac-14,42	A = Im; λ _{exc} = 365 nm; used φ _T (S) = 0.20.	89F115
1.286	2,2':5',2''-Terthiophene, 5-bromo-								
	CDCl ₃	~1.16 × 10 ⁻²	0.70 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used φ _T (AC) = 1, ε _T (AC) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. p _A = 1.	87E410
1.287	2,2':5',2''-Terthiophene, 5-cyano-								
	CDCl ₃	~1.16 × 10 ⁻²	0.86 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used φ _T (AC) = 1, ε _T (AC) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. p _A = 1.	87E410
1.288	2,2':5',2''-Terthiophene, 5,5''-dibromo-								
	CDCl ₃	~1.16 × 10 ⁻²	0.69 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used φ _T (AC) = 1, ε _T (AC) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. p _A = 1.	87E410
	EtOH	O ₂	-0.3 ^T	-1			PL/Ac-14,42	A = DPBF; meas. φ _T (S) = 0.35 ^f ; λ _{exc} = 353 nm. P _T ^{O₂} = 1, p _A = 0.75.	85N020
1.289	2,2':5',2''-Terthiophene, 5-methyl-								
	CDCl ₃	~1.16 × 10 ⁻²	0.93 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used φ _T (AC) = 1, ε _T (AC) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. p _A = 1.	87E410

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	f _Δ ^S	Σf or n _Δ	Method	Comment	Ref.
1.290 2,2':5',2''-Terthiophene-5-carboxylic acid									
	EtOH	O ₂	~0.2 ^T	~1			PL/Ac-14,42	A = DPBF; meas. Φ _T (S) = 0.2 ^f , λ _{exc} = 353 nm. P _T ^{O₂} = 1, p _A = 0.75.	85N020
1.291 Tetracene									
	C ₆ H ₅ CH ₃	O ₂	0.86				PL/LI-38,56	used Φ _T (S) = 0.61. Assumed f _T ^{O₂} = 1; used f _Δ ^T + f _Δ ^S = 1.2.	87E668
	C ₆ H ₅ CH ₃	0.2 atm O ₂	0.71				PL/LI-38,56	used Φ _T (S) = 0.61. Assumed f _T ^{O₂} = 1; used f _Δ ^T + f _Δ ^S = 1.2.	87E668
	C ₆ H ₅ CH ₃	(2-9) × 10 ⁻³				1.2	CP/Ac-14,38	A = DPBF; λ _{exc} = 470 nm. Assumed f _T ^{O₂} = 1, Φ _T f _Δ ^T = 0.61.	84F197
	C ₆ H ₆	air	0.70				CP/Ac-40	A = DPBF. Assumed f _Δ ^S = 0, f _Δ ^T = 1.	78E036
	C ₆ H ₆	O ₂	0.83				CP/Ac-40	A = DPBF. Assumed f _Δ ^S = 0, f _Δ ^T = 1.	78E036
	C ₆ H ₆	air	0.68				CP/Ac-14	A = DPBF.	78E036
	C ₆ H ₆	O ₂	0.85				CP/Ac-14	A = DPBF.	78E036
	C ₆ H ₆	air ^a	0.71 ^T			1.2	CP/Ac-14,40	A = S. Assumed f _T ^{O₂} = 1; f _Δ ^T + f _Δ ^S from Φ _Δ when P _S ^{O₂} = 1; Φ _T f _Δ ^T = Φ _Δ when P _S ^{O₂} = 0.	767422
	C ₆ H ₆	air ^a		~1	~0	~1	CP/Ac-14,38	A = S. Assumed f _Δ ^T = 1 and f _T ^{O₂} = 1.	76F905
	C ₆ H ₆	O ₂ var.					CP/Ac-14,38	A = S; λ _{exc} = 435.8 nm. Φ _T f _Δ ^T / (f _Δ ^T + f _Δ ^S) = 0.61.	68F286
1.292 α-Tetralone									
	C ₆ H ₆	O ₂	0.25 ^T	0.25			PL/Hp-52,42	λ _{exc} = 355 nm; used Φ _T (S) = 1. Measured Φ _Δ = 0.25, P _T ^{O₂} = 1 and Φ _F .	88E449
	C ₆ H ₆	O ₂	0.29 ^T	0.25			PL/LI-56,42	S' = Pz; rel. to Φ _Δ (S') = 0.83; used Φ _T (S) = 1. Measured P _T ^{O₂} = 1.	88E449
1.293 Thiobenzophenone, 4,4'-dimethoxy- (DMTBP)									
	C ₆ H ₆	O ₂	0.88* 1.0 ^T	1.0			PL/Ad-43,42	S' = BP; A = DPBF; rel. to Φ _Δ (S') = 0.4; meas. Φ _T (S) = 1 ^f ; λ _{exc} = 337 nm. Assumed Φ _T (S) = Φ _T (S').	84A221
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used Φ _T (S) = 1. [S] → 0, Φ _Δ = 0.83 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.294 Thiobenzophenone, 4-phenyl-									
	CHCl ₃	air ^a	1.0 ^T	1.0			CP/Ac-14,42	A = DTBF; used Φ _T (S) = 1. [S] → 0, Φ _Δ = 0.56 at [S] = 0.01 mol L ⁻¹ .	83F028 82F140
1.295 Thiocoumarin									
	C ₆ H ₆	(1.9-9.1) × 10 ⁻³	0.7* 0.8 ^T	0.8			PL/Ad-43,39	S' = BP; A = DPBF; rel. to Φ _Δ (S') = 0.4; meas. Φ _T (S) = 1; λ _{exc} = 337 nm. Used P _S ^{O₂} = 0.	86A240
	C ₆ H ₆	(1.9-9.1) × 10 ⁻³	1.0 ^T	1.0			PL/Ad-43,39	S' = DMTBP; A = DPBF; rel. to Φ _Δ (S') = 1; meas. Φ _T (S) = 1; λ _{exc} = 532 nm. Used P _S ^{O₂} = 0.	86A240
1.296 Thiophene, 2,5-diphenyl-									
	EtOH	O ₂	~0.3	~1			PL/Ac-14,42	A = DPBF; meas. Φ _T (S) = 0.30; λ _{exc} = 353 nm. P _T ^{O₂} = 1, p _A = 0.75.	85N020
1.297 Thiophene, 2-(1-naphthalenyl)-									
	CDCl ₃	~1.16 × 10 ⁻²	0.76 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used Φ _T (AC) = 1, ε _T (AC) = 525 L mol ⁻¹ cm ⁻¹ at 7640 nm. p _A = 1.	87E410
1.298 Thiophene, 2-(2-naphthalenyl)-									
	CDCl ₃	~1.16 × 10 ⁻²	0.63 ^T				PL/Ad,ACt-49	A = DPBF; AC = BP; λ _{exc} = 337 nm; used Φ _T (AC) = 1, ε _T (AC) = 7640 L mol ⁻¹ cm ⁻¹ at 525 nm. p _A = 1.	87E410

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.299	Thiophene, 2,2'-(1,3-phenylene)bis- CDCl ₃	$\sim 1.16 \times 10^{-2}$	0.75 ^T				PL/Ad, A Ct-49	A = DPBF; AC = BP; $\lambda_{exc} = 337$ nm; used $\phi_T(AC) = 1$, $\varepsilon_T(AC) = 7640$ L mol ⁻¹ cm ⁻¹ at 525 nm. $p_A = 1$.	87E410
1.300	Thiophene, 2,2'-(1,4-phenylene)bis- CDCl ₃	$\sim 1.16 \times 10^{-2}$	0.69 ^T				PL/Ad, A Ct-49	A = DPBF; AC = BP; $\lambda_{exc} = 337$ nm; used $\phi_T(AC) = 1$, $\varepsilon_T(AC) = 7640$ L mol ⁻¹ cm ⁻¹ at 525 nm. $p_A = 1$.	87E410
1.301	4-Thiouridine								
	CH ₃ CN	air	0.6 ^T	1			PL/LI-56,42	S' = Ac; rel. to $\phi_{\Delta}(S') = 0.84$; meas. $\phi_T(S) = 0.61$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 0.92$.	90E312
	CH ₃ CN	O ₂	0.4 ^T	0.67			PL/Hp-53,42	meas. $\phi_T(S) = 0.61$; $\lambda_{exc} = 355$ nm; used $\phi_T(S) = 0$. $P_T^{O_2} = >0.98$.	90E312
	CH ₃ CN	O ₂	0.5 ^T	0.84			PL/Hp-52,42	meas. $\phi_T(S) = 0.61$; $\lambda_{exc} = 353$ nm. $P_T^{O_2} = >0.98$.	90E312
	CH ₃ CN	O ₂	0.70 ^T				PL/LI-56,42	S' = DCA; rel. to $\phi_{\Delta}(S') = 1.6$; $\lambda_{exc} = 355$ nm.	83F604
	D ₂ O	air	0.18 ^T	0.93			PL/LI-56,42	S' = H ₂ TMpyP ⁴⁺ ; rel. to $\phi_{\Delta}(S') = 0.80$; meas. $\phi_T(S) = 0.67$; $\lambda_{exc} = 353$ nm. $P_T^{O_2} = 0.29$.	90E312
1.302	1,4,7-Triazacyclononanetri(isothiocyanato)chromium(III) (Cr(tacn)(NCS) ₃)	(CH ₃) ₂ CO	O ₂	0.62			CP/Pa-43	S' = RB; A = Furan; P = Furan endoperoxide; rel. to $\phi_{\Delta}(S') = 0.80^b$.	89F067
1.303	Tribenzo[a,f,j]perylene, 9,18-diphenyl- (Mesodiphenylbenzheianthrene, MDBH)								
	C ₆ H ₅ CH ₂ OH	air	0.17				CP/Ac-A.18	A = S; $\lambda_{exc} = 632.8$ nm. $f_r^A = 0.026$.	87F480
	m-Cresol	air	0.12				CP/Ac-A.18	A = S; $\lambda_{exc} = 632.8$ nm; used $\phi_T(S) = 0.61$. $f_r^A = 0.026$.	87F480
	CCl ₄	air	0.18				CP/Ac-14,38	A = S; meas. $\phi_T(S) = 0.09$; $\lambda_{exc} = 632.8$ nm. $f_r^O_2 = 1$, $f_r^A = 0.026$, [O ₂] varied, ($f_{\Delta}^S + f_{\Delta}^T f_r^O_2$) = 0.91.	87F479
1.304	Triphenylene								
	c-C ₆ H ₁₂	$\rightarrow \infty$	0.49 ST				PL/LI-56	S' = Py; rel. to $\phi_{\Delta}(S') = 0.81$; $\lambda_{exc} = 355$ nm.	91E297
	n-C ₆ H ₁₄	air	0.25				PL/Ad-43	S' = An; A = DPBF; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 264$ nm. $P_T^{O_2} = 1$.	82E258
	CH ₃ CN	$\rightarrow \infty$	0.27 ST				PL/LI-56	S' = DCA; rel. to $\phi_{\Delta}(S') = 2.0$; $\lambda_{exc} = 355$ nm.	91E297
1.305	Tris(2,2'-bipyridine)iridium(III) ion	MeOH	O ₂	$\sim 1^T$			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.306	Tris(2,2'-bipyridine)ruthenium(II) ion								
	MeOH	air ^a		0.81 ^T	0.92		PL/Ad-49,39	A = DPBF; AC = BP; $\lambda_{exc} = 532$ nm; used $k_d = 1.0 \times 10^5$ s ⁻¹ , $k_A = 8.1 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\phi_T(S) = 0.95^c$, $\phi_T(AC) = 1$, $\varepsilon_T(AC) = 7600$ L mol ⁻¹ cm ⁻¹ at 532 nm. $P_T^{O_2} = 0.93$.	85E190
	MeOH	O ₂		0.83 ^T	0.94		PL/Ad-49,41	A = DPBF; AC = BP; $\lambda_{exc} = 337$ nm; used $k_d = 1.0 \times 10^5$ s ⁻¹ , $k_A = 8.1 \times 10^8$ L mol ⁻¹ s ⁻¹ , $\phi_T(S) = 0.95^d$, $\phi_T(AC) = 1$, $\varepsilon_T(AC) = 7600$ L mol ⁻¹ cm ⁻¹ at 532 nm. $P_T^{O_2} = 0.93$.	84F005
	MeOH	O ₂		0.90 ^T	0.95		CP/Ac-43,42	S' = RB; A = Bu ₂ S; rel. to $\phi_{\Delta}(S') = 0.80^b$, $\lambda_{exc} = 546$ nm; used $\phi_T(S) = 0.95^d$. Measured $P_T^{O_2} = 1$.	80F304
	MeOH	O ₂		0.86 ^T	0.91		CL/Oc-14,42	A = TME; $\lambda_{exc} = 488, 514.4, 457.9$ nm; used $\phi_T(S) = 0.95^d$. Used $P_T^{O_2} = 1$.	767423

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
1.307	Tris(1,10-phenanthroline)iridium(III) ion								
	MeOH	O ₂		~1 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.308	Tris(1,10-phenanthroline)osmium(II) ion								
	MeOH	O ₂		0.76 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
1.309	Tris(1,10-phenanthroline)ruthenium(II) ion								
	MeOH	O ₂		0.75 ^T			CL/Oc-14	A = TME; $\lambda_{exc} = 488$ nm.	777221
	MeOH	O ₂		0.95 ^T			CL/Oc-14	A = H ₂ NCSNH ₂ ; $\lambda_{exc} = 488$ nm.	777221
1.310	Vitamin D ₃								
	C ₆ H ₆			2 × 10 ⁻³					
					0.28*		PL/LI-60		
					0.25			$S' = Np$; TD = p-MAP; rel. to $f_{\Delta}^T(S') = 0.55$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} \rightarrow 1$; Cor. for 12% oxygen quenching of p-MAP triplet.	90E030
	C ₆ H ₆			2 × 10 ⁻³			PL/LI-60	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.29$; $\lambda_{exc} = 355$ nm. Measured $P_T^{O_2}$.	89A235
					0.30*				
					0.25				
1.311	Xanthen-3-one, 9-(2-carboxyethyl)-6-hydroxy-4,5-diodo-, dianion								
	DMF	air ^a		0.30			CP/Ac-43	$S' = RB$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618
1.312	Xanthen-3-one, 9-(2-carboxyethyl)-6-hydroxy-2,4,5,7-tetrabromo-, dianion								
	DMF	air ^a		0.13			CP/Ac-43	$S' = RB$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618
1.313	Xanthen-3-one, 9-(2-carboxyethyl)-6-hydroxy-2,4,5,7-tetraiodo-, dianion								
	DMF	air ^a		0.44			CP/Ac-43	$S' = RB$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618
1.314	Xanthen-3-one, 9-(2-carboxyethyl)-6-hydroxy-2,4,5-triiodo-, dianion								
	DMF	air ^a		0.41			CP/Ac-43	$S' = RB$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618
1.315	Xanthen-3-one, 9-(2,3,4,5-tetrachlorophenyl)-6-hydroxy-2,4,5,7-tetraiodo-, anion								
	MeOH	air ^a		0.87			CP/Ac-43	$S' = Eos$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.32$. Rel. to S' in ethanol.	90F251
	MeOH	air ^a		0.76			CP/Ac-43	$S' = RB$; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	90F251
1.316	Xanthen-9-one								
	C ₆ H ₆	air ^a		0.33 ^T	0.33		PL/βCb-43,42	$S' = BP$; rel. to $f_{\Delta}^T(S') = 0.35$; used $\phi_T(S) = 1^d$. Measured $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.95$.	76F904
	C ₆ H ₆	O ₂		0.24 ^T	0.28		PL/LI-56,42	$S' = Pz$; rel. to $\phi_{\Delta}(S') = 0.83$; used $\phi_T(S) = 1$. Measured $P_T^{O_2} = 0.82$.	88E449
	C ₆ H ₆	O ₂		0.28 ^T	0.28		PL/Hp-52,42	$\lambda_{exc} = 355$ nm; used $\phi_T(S) = 1$. Measured $\phi_{\Delta} = 0.23$, $P_T^{O_2} = 0.82$ and ϕ_F .	88E449
1.317	O ₂ :solvent CT state								
	Decalin	air		~0.12			PL/LI-56	$S' = Biph$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 239$ nm.	89E309
	c-C ₆ H ₁₂	air		~0.22			PL/LI-56	$S' = Biph$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 239$ nm.	89E309
	c-C ₈ H ₁₆	air		~0.18			PL/LI-56	$S' = Biph$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 239$ nm.	89E309
	1,3,5-C ₆ H ₃ (CH ₃) ₃	air		~0.17			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.8$; $\lambda_{exc} = 355$ nm.	89E309
	1,2-C ₆ H ₄ (CH ₃) ₂	air		~0.20			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.8$; $\lambda_{exc} = 355$ nm.	89E309
	1,4-C ₆ H ₄ (CH ₃) ₂	air		~0.20			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.8$; $\lambda_{exc} = 355$ nm.	89E309
	C ₆ H ₅ CH ₃	O ₂		0.25			PL/LI-56	$S' = TPP$; rel. to $\phi_{\Delta}(S') = 0.82$; $\lambda_{exc} = 347$ nm.	90E760
	C ₆ H ₅ CH ₃	air		~0.20			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.8$; $\lambda_{exc} = 355$ nm.	89E309
	C ₆ H ₆	air		~0.20			PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.8$; $\lambda_{exc} = 355$ nm.	89E309

^a Oxygen concentration not given; assumed to be air saturated.^b Value of $\phi_{\Delta}(S')$ used in this work to calculate $\phi_{\Delta}(S)$ from authors' reported $\phi_{\Delta}(S)/\phi_{\Delta}(S')$.

Table 1. Quantum yields of photosensitized production of singlet oxygen.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	f_{Δ}^S	Σf or n_{Δ}	Method	Comment	Ref.
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^c Value of $\phi_T(S)$ from the literature used in this work to calculate ϕ_{Δ} .^d Value of $\phi_T(S)$ from the literature used in this work to calculate f_{Δ}^T .^e Value of $\phi_T(S)$ measured or quoted by the authors, used in this work to calculate ϕ_{Δ} .^f Value of $\phi_T(S)$ measured or quoted by the authors, used in this work to calculate f_{Δ}^T .^g Value of $\phi_T(S)$ used in this work to calculate ϕ_{Δ} or f_{Δ}^T , average of 0.73 [776258] and 1.0 [81E147].^T Value corrected for 100% quenching of T₁.ST Value corrected for 100% quenching of S₁ and T₁.* Values recalculated using $\phi_{\Delta}(S')$ or $f_{\Delta}^T(S')$ from Table 4 or from the quoted reference.

Table 2. Quantum yields of photosensitized production of singlet oxygen, from porphyrins and related species.

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.1 Bacteriochlorophyll <i>a</i>							
	(C ₂ H ₅) ₂ O	air ^a	0.43		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	C ₅ H ₅ N	air ^a	0.4		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	C ₆ D ₆	air ^a	0.34		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.7; λ _{exc} = 347 nm. f _Δ ^T = 0.5 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185
	C ₆ H ₆	air ^a	0.40*		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.32; λ _{exc} = 347 nm. f _Δ ^T = 1 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185
	CCl ₄	O ₂	0.6		MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7. Used P _T ^{O₂} = 1; supersedes [79A010], [77E617], [78E881].	85F517
	D ₂ O (mic)	air ^a	0.11		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. cont. 2% Triton X-100	90E324
	D ₂ O/EtOH (95:5)	air ^a	<0.02		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	MeOD	air ^a	0.2		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.53; meas. Φ _T (S) = 0.22; λ _{exc} = 347 nm. f _Δ ^T = -1 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185
2.2 Bacteriochlorophyll <i>b</i>							
	(C ₂ H ₅) ₂ O	air ^a	0.48		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	C ₅ H ₅ N	air ^a	0.43		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	CCl ₄	O ₂	0.65		MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85F517
	D ₂ O (mic)	air ^a	0.15		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. cont. 2% Triton X-100.	90E324
	D ₂ O/EtOH (95:5)	air ^a	<0.02		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
2.3 Chlorophyll <i>a</i>							
	(C ₂ H ₅) ₂ O	air ^a	0.52		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	i-C ₅ H ₁₁ OH	air ^a	0.77		CP/Oc-14	A = ATU; λ _{exc} = 436 nm.	56F007
	C ₅ H ₅ N	air ^a	0.59		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	C ₅ H ₅ N	O ₂	0.49		CP/Oc-14	A = H ₂ NCSNH ₂ ; λ _{exc} = 430 nm. Assumed f _r ^A = 2.	737347 74E522
	c-C ₆ H ₁₁ OH	air ^a	0.77		CP/Oc-14	A = ATU; λ _{exc} = 436 nm.	56F007
	C ₆ H ₅ CH ₂ OH	air ^a	0.77		CP/Oc-14	A = ATU; λ _{exc} = 436 nm.	56F007
	C ₆ H ₅ CH ₃	air ^a	0.60		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	C ₆ H ₅ CH ₃	8.5 × 10 ⁻³	0.68		CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50. Rel. to S' in MeOH.	84F191
	C ₆ H ₆	9.1 × 10 ⁻³	0.60		CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50. Rel. to S' in MeOH.	84F191
	CCl ₄	air	0.57		MP/LI-56	S' = Ph a. P _T ^{O₂} = 1; reported 0.55 in [79A010]; recalc'd. in [90R045] rel. to Φ _Δ (TPP) = 0.70.	79A010 90R045
	CH ₃ CN	air ^a	0.60		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	D ₂ O (mic)	air ^a	0.35		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. cont. 2% Triton X-100.	90E324
	D ₂ O/EtOH (95:5)	air ^a	<0.02		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324
	H ₂ O (mic) pH = 7.0	air	0.70-0.85		CP/Oc-14	A = Im; P = Imidazole endoperoxide; λ _{exc} = 660 nm. Soln. contg. 1% Triton X-100; assumed f _r ^A = 0.17-0.2.	79N115
	MeOH	air ^a	0.77		CP/Oc-14	A = ATU; λ _{exc} = 436 nm.	56F007
2.4 Chlorophyll <i>b</i>							
	C ₆ H ₅ CH ₃	air ^a	0.75		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	C ₆ D ₆	1.2% O ₂ in N ₂		0.92	PR/LI-60	S' = Np; TD = BP; rel. to f _Δ ^T (S') = 0.55. P _T ^{O₂} = 1; cor. for energy transfer efficiency.	91A358
	CH ₃ CN	air ^a	0.85		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.5	Chlorophyll (oil soluble)						
	C ₆ H ₆	9.1 × 10 ⁻³	0.50		CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50. Rel. to S' in MeOH.	84F191
2.6	[22]COPROPORPHYRIN II						
	CH ₂ Cl ₂	air ^a	1.1		CP/Pa-43	S' = RB; A = 2,5-DMF; rel. to Φ _Δ (S') = 0.80 ^b .	90R215
2.7	Methyl acetal of oxidized octaethylporpurin ethyl ester						
	MeOH	air	0.4		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.64; meas. Φ _T (S) = 0.6. f _Δ ^T = 0.7 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; secondary Φ _Δ (S') = 0.41, S' = ZnPCS.	90E491
2.8	Naphthalocyanine, 2,11,20,29-tetrakis(1,1-dimethylethyl)-						
	CCl ₄	air ^a	0.15*		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm.	90R204
			0.17				
2.9	Naphthalocyanine, 2,11,20,29-tetrakis(1,1-dimethylethyl)-, chloroaluminum(III)						
	CCl ₄	air ^a	0.37*		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm.	90R204
			0.42				
2.10	Naphthalocyanine, 2,11,20,29-tetrakis(1,1-dimethylethyl)-, copper(II)						
	CCl ₄	air ^a	0		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm. Not detectable.	90R204
2.11	Naphthalocyanine, bis(trihexylsilanolato)silicon (SiNC)						
	C ₆ H ₆	O ₂	0.35		PL/LI-56	S' = Np; rel. to Φ _Δ (S') = 0.55; meas. Φ _T (S) = 0.39; λ _{exc} = 355 nm.	87R032
	C ₆ D ₆	air	0.19		PL/LI-56	S' = BP; rel. to Φ _Δ (S') = 0.29; meas. Φ _T (S) = 0.20; λ _{exc} = 355 nm.	88E657
2.12	Pheophytin <i>a</i>						
	(C ₂ H ₅) ₂ O	air	0.67		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045
	C ₅ H ₅ N	O ₂	0.64		CP/Oc-14	A = H ₂ NCSNH ₂ . Used f _r ^A = 2.	74E522
	C ₆ H ₅ CH ₃	air ^a	0.73		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	CCl ₄	air	0.71*		MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045
			0.80				79A010
	CH ₃ CN	air ^a	0.85		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	D ₂ O/EtOH (90:10) (mic)	air	0.70		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70. P _T ^{O₂} = 1. Soln. cont. 2% Triton X-100.	90R045
	D ₂ O/EtOH (95:5)	air	<0.02		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045
	EtOH	air	0.60		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045
2.13	Pheophytin <i>b</i>						
	C ₆ H ₅ CH ₃	air ^a	0.70		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	CH ₃ CN	air ^a	0.84		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
2.14	20-Phorbinecarboxylic acid, 3,4-didehydro-3,4,8,9,13,14,18,19-octaethyl-18,19-dihydro-, ethyl ester (Octaethylidihydroporphyrin ethyl ester)						
	MeOII	air	0.71		PL/LI-56,42	S' = IIP; rel. to Φ _Δ (S') = 0.64; meas. Φ _T (S) = 0.86. f _Δ ^T = 0.83 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; secondary Φ _Δ (S') = 0.41, S' = ZnPCS.	90E491
2.15	20-Phorbinecarboxylic acid, 3,4-didehydro-3,4,8,9,13,14,18,19-octaethyl-18,19-dihydro-, ethyl ester, dichlorotin(IV)						
	MeOH	air	0.82		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.64; meas. Φ _T (S) = 0.96. f _Δ ^T = 0.85 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; secondary Φ _Δ (S') = 0.41, S' = ZnPCS.	90E491
2.16	20-Phorbinecarboxylic acid, 3,4,20,21-tetrahydro-3,4,8,9,13,14,18,19-octaethyl-18,19-dihydro-, ethyl ester (Octaethylporpurin, ethyl ester)						
	C ₆ H ₆	air ^a	0.70		PL/LI-56,42	S' = BChl a; rel. to Φ _Δ (S') = 0.35; meas. Φ _T (S) = 0.81; λ _{exc} = 694 nm. f _Δ ^T = 0.86 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.	88R200
	C ₆ H ₆	air ^a	0.74*		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.81; λ _{exc} = 347 nm. f _Δ ^T = 0.80 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.	88R200
			0.65				
	MeOH	air	0.68		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.64; meas. Φ _T (S) = 0.82. f _Δ ^T = 0.83 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; secondary Φ _Δ (S') = 0.41, S' = ZnPCS.	90E491

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.17 20-Phorbinecarboxylic acid, 3,4,20,21-tetrahydro-4,9,14,19-tetraethyl-18,19-dihydro-3,8,13,18-tetramethyl-, ethyl ester, zinc(II) (Etiopurpurin ethyl ester, zinc(II))							
C ₆ H ₆	air ^a	0.54	PL/LI-56,42	S' = BChl a; rel. to φ _Δ (S') = 0.35; meas. φ _T (S) = 0.84; λ _{exc} = 694 nm. f _Δ ^T = 0.71 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.	88R200		
C ₆ H ₆	air ^a	0.68*	PL/LI-56,42	S' = Ac; rel. to φ _Δ (S') = 0.73; meas. φ _T (S) = 0.84; λ _{exc} = 347 nm. f _Δ ^T = 0.64 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.	88R200		
2.18 3-Phorbinepropanoic acid, 9-acetyl-14-ethyl-13,14-dihydro-21-(methoxycarbonyl)-4,8,13,18-tetramethyl-20-oxo-, 3,7,11,15-tetramethyl-2-hexadecenyl ester (Bacteriopheophytin a)							
(C ₂ H ₅) ₂ O	air ^a	0.48	PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324		
C ₅ H ₅ N	air ^a	0.8	PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324		
C ₆ D ₆	air ^a	0.53*	PL/LI-56,42	S' = Ac; rel. to φ _Δ (S') = 0.73; meas. φ _T (S) = 0.8; λ _{exc} = 347 nm. f _Δ ^T = 0.6 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185		
C ₆ H ₆	air ^a	0.46	PL/LI-56,42	S' = Ac; rel. to φ _Δ (S') = 0.73; meas. φ _T (S) = 0.73; λ _{exc} = 347 nm. f _Δ ^T = 0.63 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185		
CCl ₄	O ₂	0.75	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85F517		
CCl ₄	air	0.69	MP/LI-56	S' = Chl a; rel. to φ _Δ (S') = 0.55. P _T ^{O₂} = 1.	79A010		
D ₂ O (mic)	air ^a	0.36	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. cont. 2% Triton X-100.	90E324		
D ₂ O/EtOH (95:5)	air ^a	<0.02	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324		
MeOD	air ^a	0.2-0.3	PL/LI-56,42	S' = HP; rel. to φ _Δ (S') = 0.53; meas. φ _T (S) = 0.6; λ _{exc} = 347 nm. f _Δ ^T = 0.4-0.5 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185		
2.19 3-Phorbinepropanoic acid, 9-acetyl-14-ethylidene-13,14-dihydro-21-(methoxycarbonyl)-4,8,13,18-tetramethyl-20-oxo-, 3,7,11,15-tetramethyl-2-hexadecenyl ester (Bacteriopheophytin b)							
(C ₂ H ₅) ₂ O	air ^a	0.43	PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Used P _T ^{O₂} = 1.	90E324		
C ₅ H ₅ N	air ^a	0.50	PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324		
CCl ₄	O ₂	0.75	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85F517		
D ₂ O (mic)	air ^a	0.35	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. cont. 2% Triton X-100.	90E324		
D ₂ O/EtOH (95:5)	air ^a	<0.02	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90E324		
2.20 3-Phorbinepropanoic acid, 3,4-didehydro-9-ethenyl-14-ethyl-21-(methoxycarbonyl)-4,8,13,18-tetramethyl-20-oxo-, magnesium(II) (Protocultiphophyllide)							
(C ₂ H ₅) ₂ O	air ^a	0.77	PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70.	88F450		
D ₂ O	air ^a	≤0.02	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70. Colloidal soln. contg. 0.5% NH ₄ OH.	88F450		
D ₂ O (mic)	air ^a	0.84	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70. Soln. cont. 1% Triton X-100.	88F450		
2.21 3-Phorbinepropanoic acid, 3,4-didehydro-9-ethenyl-14-ethyl-21-(methoxycarbonyl)-4,8,13,18-tetramethyl-20-oxo-, 3,7,11,15-tetramethyl-2-hexadecenyl ester (Protopheophytin)							
C ₆ H ₅ CH ₃	air ^a	0.70	PL/LI-56	S' = PdMPDME; rel. to φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543		
CCl ₄	air	0.88	MP/LI-56	S' = Chl a; rel. to φ _Δ (S') = 0.55. P _T ^{O₂} = 1.	79A010		
CH ₃ CN	air ^a	0.87	PL/LI-56	S' = PdMPDME; rel. to φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543		
2.22 3-Phorbinepropanoic acid, 9-ethenyl-14-ethyl-21-(methoxycarbonyl)-4,6,13,18-tetramethyl-20-oxo- (Pheophorbide a)							
(C ₂ H ₅) ₂ O	air	0.74	PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045		
CCl ₄	air	0.71*	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045		
D ₂ O/EtOH (90:10) (mic)	air	0.80	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70. P _T ^{O₂} = 1. Soln. cont. 2% Triton X-100.	90R045		
D ₂ O/EtOH (95:5) (mic)	air	0.49	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70. P _T ^{O₂} = 1. Soln. cont. 2% Triton X-100.	90R045		

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ _Δ	f _Δ ^T	Method	Comment	Ref.
2.22 3-Phorbinepropanoic acid, 9-ethenyl-14-ethyl-21-(methoxycarbonyl)-4,6,13,18-tetramethyl-20-oxo- (Pheophorbide a)—Continued							
	D ₂ O/EtOH (95:5)	air	<0.02		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045
	EtOH	air	0.60		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70. P _T ^{O₂} = 1.	90R045
	EtOH	air ^a	0.51		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70; λ _{exc} = 514.5 nm.	90R204
2.23 3-Phorbinepropanoic acid, [3,7,11,15-tetramethyl-2-hexadecenyl] 3,4-didehydro-9-ethenyl-14-ethyl-21-(methoxycarbonyl)-4,8,13,18-tetramethyl-20-oxo-3-phorbinepropanoatomagnesium (Protochlorophyll)							
	(C ₂ H ₅) ₂ O	air ^a	0.84		PL/LI-56	S' = TPP; rel. to ϕ _Δ (S') = 0.70.	88F450
	C ₆ H ₅ CH ₃	air ^a	0.68		PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	CCl ₄	air	0.63		MP/LI-56	S' = Chl a; rel. to ϕ _Δ (S') = 0.55. P _T ^{O₂} = 1.	79A010
	CH ₃ CN	air ^a	0.78		PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
	D ₂ O	air ^a	≤0.02		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70. Colloidal soln. contg. 0.5% NH ₄ OH.	88F450
	D ₂ O (mic)	air ^a	0.84		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70. Soln. cont. 1% Triton X-100.	88F450
2.24 Phthalocyanine, magnesium(II)							
	C ₅ H ₅ N	O ₂	0.40		CP/Oc-14	A = H ₂ NCSNH ₂ ; λ _{exc} = 669 nm. Assumed f _r ^A = 2.	737347 74E522
2.25 Phthalocyanine, zinc(II), bis(pyridine)							
	C ₆ H ₆	O ₂	0.50		PL/LI-56	S' = ZnTPP; rel. to ϕ _Δ (S') = 0.73; λ _{exc} = 600 nm. P _T ^{O₂} = 0.95.	89N079 90N126
	D ₂ O (ves) pD = 7.4	O ₂	0.49		PL/LI-56	S' = UP; rel. to ϕ _Δ (S') = 0.71; λ _{exc} = 600 nm. [DPPC] = 6.7 × 10 ⁻⁴ mol L ⁻¹ , S' in D ₂ O-Tris buffer.	90N126
	D ₂ O (ves) pD = 7.4	O ₂	0.47		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.72; λ _{exc} = 600 nm. [DPPC] = 6.7 × 10 ⁻⁴ mol L ⁻¹ , S' in D ₂ O-Tris buffer.	90N126
	EtOH	air	0.53		CP/Ac-14	A = DPBF; λ _{exc} = 600 nm. Extrapolated to [A] → ∞.	88A284
	EtOH	air	0.4		PL/LI-56	S' = An; rel. to ϕ _Δ (S') = 0.53; λ _{exc} = 354 nm.	88A284
	EtOH	air	0.4		PL/LI-56	S' = ZnTPP; rel. to ϕ _Δ (S') = 0.55; λ _{exc} = 600 nm.	88A284
	H ₂ O (ves)	air	0.7		CP/Ac-14	A = DPBF; λ _{exc} = 600 nm. Extrapolated to [A] → ∞; unilamellar DPPC vesicles.	88A284
2.26 Phthalocyanine, 1,4,8,11,15,18,22,25-octabutoxy-, zinc(II)							
	C ₆ D ₆	air	0.45		PL/LI-56	S' = BP; rel. to ϕ _Δ (S') = 0.29; meas. ϕ _T (S) = 0.46; λ _{exc} = 532 nm. Soln. cont. 1% pyridine.	89E453
	C ₆ D ₆	air	0.50		PL/LI-56	S' = BP; rel. to ϕ _Δ (S') = 0.29; meas. ϕ _T (S) = 0.52; λ _{exc} = 532 nm. Soln. cont. 0.01% morpholine.	89E453
2.27 Phthalocyanine, sulfo- (mixed di-, tri- and tetrasulfo)							
	D ₂ O (mic)	air ^a	0.1		PL/LI-56,42	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.67; meas. ϕ _T (S) = 0.25; λ _{exc} = 347 nm. f _Δ ^T = 0.4 assuming P _S ^{O₂} = 0. Soln. cont. 0.01 mol L ⁻¹ CTAB.	86F541 87R188
	H ₂ O pH = 7	air	0.14		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to ϕ _Δ (S') = 0.75; λ _{exc} = 670 nm. RNO as monitor of P; used P _T ^{O₂} = 1, ϕ _Δ (S') at λ _{exc} = 550 nm, cor. to 670 nm.	86R060
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.12		CP/Pa-14	A = TrpH; λ _{exc} = 688 nm.	87F104
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.10		CP/Pa-14	A = TrpH; λ _{exc} = 654 nm.	87F104
	MeOD	air ^a	0.21*		PL/LI-56,42	S' = HP; rel. to ϕ _Δ (S') = 0.53; meas. ϕ _T (S) = 0.22; λ _{exc} = 347 nm. f _Δ ^T = 0.93 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1; recalcd. using ϕ _Δ (S') = 0.64 from [88Z155].	87R185 87R188
	MeOD	air ^a	0.1		PL/LI-56,42	S' = HP; rel. to ϕ _Δ (S') = 0.53; meas. ϕ _T (S) = 0.22; λ _{exc} = 694 nm. f _Δ ^T = 0.6 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.28	Phthalocyanine, trisulfo-, chloroaluminum(III)						
	D ₂ O pH = 7	O ₂	0.34		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.62$; meas. $\phi_T(S) = 0.46$; $\lambda_{exc} = 355$ nm. Rel. to S' in H ₂ O; soln. contg. 2 × 10 ⁻³ mol L ⁻¹ phosphate buffer and 1% NaCl wt/wt.; $P_T^{O_2} = 1$.	90A022 89R092
2.29	Phthalocyanine, sulfo-, chloroaluminum(III)						
	H ₂ O pH = 7	air	0.34		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 670$ nm. RNO as monitor of P; used $P_T^{O_2} = 1$, $\phi_{\Delta}(S')$ at $\lambda_{exc} = 550$ nm, cor. to 670 nm.	86R060
2.30	Phthalocyanine, sulfo-, aluminum(III)						
	MeOD	air ^a	0.36		PL/LI-56,42	S' = HP; rel. to $\phi_{\Delta}(S') = 0.64$; meas. $\phi_T(S) = 0.42$; $\lambda_{exc} = 347$ nm. $f_{\Delta}^T = 0.86$ assuming $P_S^{O_2} = 0$.	91R242 87R188
2.31	Phthalocyanine, sulfo(phthalimido)-, aluminum(III)						
	MeOD	air ^a	0.36		PL/LI-56	S' = HP; rel. to $\phi_{\Delta}(S') = 0.64$; $\lambda_{exc} = 347$ nm.	91R242
2.32	Phthalocyanine, sulfo-, cobalt(II)						
	H ₂ O pH = 7	air	0		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 670$ nm. RNO as monitor of P; used $P_T^{O_2} = 1$, $\phi_{\Delta}(S')$ at $\lambda_{exc} = 550$ nm, cor. to 670 nm.	86R060
2.33	Phthalocyanine, sulfo-, copper(II)						
	H ₂ O pH = 7	air	0		CP/Pa-43	S' = RR; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 670$ nm. RNO as monitor of P; used $P_T^{O_2} = 1$, $\phi_{\Delta}(S')$ at $\lambda_{exc} = 550$ nm, cor. to 670 nm.	86R060
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.12		CP/Pa-14	A = TrpH; $\lambda_{exc} = 668$ nm.	87F104
2.34	Phthalocyanine, sulfo-, iron(II)						
	H ₂ O pH = 7	air	0		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 670$ nm. RNO as monitor of P; used $P_T^{O_2} = 1$, $\phi_{\Delta}(S')$ at $\lambda_{exc} = 550$ nm, cor. to 670 nm.	86R060
2.35	Phthalocyanine, tetrasulfo-, chlorogallium(III)						
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.47		CP/Pa-14	A = TrpH; $\lambda_{exc} = 680$ nm.	87F104
2.36	Phthalocyanine, sulfo-, chlorogallium(III)						
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.56		CP/Pa-14	A = TrpH; $\lambda_{exc} = 680$ nm.	87F104
2.37	Phthalocyanine, sulfo-, oxovanadium(IV)						
	H ₂ O pH = 7	air	0		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 670$ nm. RNO as monitor of P; used $P_T^{O_2} = 1$, $\phi_{\Delta}(S')$ at $\lambda_{exc} = 550$ nm, cor. to 670 nm.	86R060
2.38	Phthalocyanine, trisulfo-, zinc(II)						
	D ₂ O pH = 7	O ₂	0.36		PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.62$; meas. $\phi_T(S) = 0.51$; $\lambda_{exc} = 355$ nm. Rel. to S' in H ₂ O; soln. contg. 2 × 10 ⁻³ mol L ⁻¹ phosphate buffer and 1% NaCl wt/wt.; $P_T^{O_2} = 1$.	90A022
2.39	Phthalocyanine, sulfo-, zinc(II)						
	H ₂ O pH = 7	air	0.45		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 670$ nm. RNO as monitor of P; used $P_T^{O_2} = 1$, $\phi_{\Delta}(S')$ at $\lambda_{exc} = 550$ nm, cor. to 670 nm.	86R060
	H ₂ O/MeOH (1:1) pH = 7	O ₂	0.62		CP/Pa-14	A = TrpH; $\lambda_{exc} = 669$ nm.	87F104
	MeOD	air ^a	0.43*		PL/LI-56,42	S' = HP; rel. to $\phi_{\Delta}(S') = 0.53$; meas. $\phi_T(S) = 0.56$; $\lambda_{exc} = 347$ nm. $f_{\Delta}^T = 0.78$ assuming $P_S^{O_2} = 0$. $P_T^{O_2} = 1$; recalcd. using $\phi_{\Delta}(S') = 0.64$ from [88Z155].	87R188 87R185

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.39 Phthalocyanine, sulfo-, zinc(II)—Continued							
	MeOD	air ^a	0.50*		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.53; meas. Φ _T (S) = 0.56; λ _{exc} = 694 nm. f _Δ ^T = 0.88 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1; recalcd. using Φ _Δ (S') = 0.64 from [88Z155].	87R185
			0.41				
	MeOD	air ^a	0.38*		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.53; meas. Φ _T (S) = 0.56; λ _{exc} = 650 nm. f _Δ ^T = 0.69 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1; recalcd. using Φ _Δ (S') = 0.64 from [88Z155].	86F541
			0.32				
2.40 Phthalocyanine, tetracarboxy-, copper(II)							
	DMSO	O ₂	0.16		CP/Ac-15	A = DPBF. Independent of [S] = (2-26) × 10 ⁻⁶ mol L ⁻¹ ; dimers and oligomers may be present.	89F260
2.41 Phthalocyanine, 2,9,16,23-tetrakis(1,1-dimethylethyl)-							
	CCl ₄	air	0.15*		MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70.	90F095
			0.17				
	CCl ₄	air ^a	0.14*		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm.	90R204
			0.16				
2.42 Phthalocyanine, 2,9,16,23-tetrakis(1,1-dimethylethyl)-, chloroaluminum(III)							
	CCl ₄	air ^a	0.28*		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm.	90R204
			0.31				
2.43 Phthalocyanine, 2,9,16,23-tetrakis(1,1-dimethylethyl)-, copper(II)							
	CCl ₄	air ^a	0.12*		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm.	90R204
			0.13				
2.44 Phthalocyanine, [2,9,16,23-tetrakis(1,1-dimethylethyl)]-, magnesium(II)							
	CCl ₄	air ^a	0.06*		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 652 nm.	90R204
			0.07				
2.45 Phthalocyanine, tetrakis[methylenethio(dimethylamino)methylidyne]tetrakis[N-methylmethanaminiumato]-, copper(II), tetrachloride							
	H ₂ O pH = 7	air	0		CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.75; λ _{exc} = 670 nm. RNO as monitor of P; used P _T ^{O₂} = 1, Φ _Δ (S') at λ _{exc} = 550 nm, cor. to 670 nm.	86R060
2.46 Porphine							
	C ₆ H ₅ CH ₃	air ^a	0.67		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
	CCl ₄	air	0.75		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8. P _T ^{O₂} = 1.	82F161
2.47 Porphine-21,23-d₂							
	C ₆ H ₅ CH ₃	air ^a	0.70		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm. P _T ^{O₂} = 1.	90E615
2.48 Porphine, 5-amino-2,7,12,17-tetraethyl-3,8,13,18-tetramethyl- (5-Aminoetioporphyrin I)							
	C ₆ H ₅ CH ₃	air ^a	0.85		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.49 Porphine, 2,18-bis[3-(dimethylammonio)propyl]-7,12-diethyl-3,8,13,17-tetramethyl-, dimethanesulfonate							
	D ₂ O/EtOH	air ^a	0.49		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7; λ _{exc} = 337 nm. Rel. to TPP in CCl ₄ , (7:3)	86F316
2.50 Porphine, 2,18-bis[3-(dimethylammonio)propyl]-7,12-diethyl-3,8,13,17-tetramethyl-, dimethanesulfonate, cobalt(II)							
	D ₂ O/EtOH	air ^a	≤0.02		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7; λ _{exc} = 337 nm. Rel. to TPP in CCl ₄ , (7:3)	86F316
2.51 Porphine, 2,18-bis[3-(dimethylammonio)propyl]-7,12-diethyl-3,8,13,17-tetramethyl-, dimethanesulfonate, manganese(II)							
	D ₂ O/EtOH	air ^a	≤0.02		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7; λ _{exc} = 337 nm. Rel. to TPP in CCl ₄ , (7:3)	86F316
2.52 Porphine, 2,18-bis[3-(dimethylammonio)propyl]-7,12-diethyl-3,8,13,17-tetramethyl-, dimethanesulfonate, zinc(II)							
	D ₂ O/EtOH	air ^a	0.24		PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7; λ _{exc} = 337 nm. Rel. to TPP in CCl ₄ , (7:3)	86F316

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.53	Porphine, 21,23-dideutero-2,3-dihydro-5,10,15,20-tetraphenyl- (Tetraphenylchlorin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.70	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.54	Porphine, 21,23-dideutero-2,3,7,8,12,13,17,18-octaethyl- (Octaethylporphyrin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.75	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.55	Porphine, 21,23-dideutero-2,3,7,8,12,13,17,18-octaethyl-2,3-dihydro- (Octaethylchlorin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.60	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.56	Porphine, 21,23-dideutero-2,3,7,8,12,13,17,18-octaethyl-5-methyl- (α -Methyloctaethylporphyrin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.81	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.57	Porphine, 21,23-dideutero-2,3,7,8,12,13,17,18-octaethyl-21-methyl- (<i>N</i> -Methyloctaethylporphyrin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.55	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.58	Porphine, 21,23-dideutero-2,3,7,8,12,13,17,18-octaethyl-5-phenyl- (α -Phenoxyoctaethylporphyrin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.60	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.59	Porphine, 21,23-dideutero-2,3,7,8,12,13,17,18-octamethyl-5,10,15,20-tetraphenyl-	C ₆ H ₅ CH ₃	air ^a	0.67	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.60	Porphine, 21,23-dideutero-2,3,12,13-tetraethyl-	C ₆ H ₅ CH ₃	air ^a	0.72	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.61	Porphine, 21,23-dideutero-2,7,12,17-tetraethyl-3,8,13,18-tetramethyl- (Etioporphyrin- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.75	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.62	Porphine, 21,23-dideutero-5,10,15,20-tetrakis(2-chlorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.84	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.63	Porphine, 21,23-dideutero-5,10,15,20-tetrakis(3-chlorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.89	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.64	Porphine, 21,23-dideutero-5,10,15,20-tetrakis(4-chlorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.83	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.65	Porphine, 21,23-dideutero-5,10,15,20-tetraphenyl- (TPP- <i>d</i> ₂)	C ₆ H ₅ CH ₃	air ^a	0.86	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.66	Porphine, 21,23-dideutero-5,10,15,20-tetrapropyl-	C ₆ H ₅ CH ₃	air ^a	0.92	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.67	Porphine, 2,3-dihydro-5,10,15,20-tetraphenyl- (Tetraphenylchlorin, TPC)	C ₆ H ₅ CH ₃	air ^a	0.65	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$.	89A504
		CCl ₄	air	0.55	MP/LI-56	S' = Ph a; rel. to $\phi_{\Delta}(S') = 0.8$.	82F161
2.68	Porphine, ethanediylbis[5,5'-(2,3,7,8,12,13,17,18-octaethyl-	C ₆ H ₅ CH ₃	air ^a	0.80	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.	91E392
		CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.80$; $\lambda_{exc} = 347$ nm.	91E392
2.69	Porphine, ethanediylbis[5,5'-(2,3,7,8,12,13,17,18-octaethyl-, copper(II)	C ₆ H ₅ CH ₃	air ^a	0.85	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.	91E392
		CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.86$; $\lambda_{exc} = 347$ nm.	91E392
2.70	Porphine, ethanediylbis[5,5'-(2,3,7,8,12,13,17,18-octaethyl-, copper(II)zinc(II)	C ₆ H ₅ CH ₃	air ^a	0.35	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.	91E392
		CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.36$; $\lambda_{exc} = 347$ nm.	91E392

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.71	Porphine, ethanediylbis[5,5'-(2,3,7,8,12,13,17,18-octaethyl-, biszinc(II)						
	C ₆ H ₅ CH ₃	air ^a	0.88	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.		91E392
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.70$; $\lambda_{exc} = 347$ nm.		91E392
2.72	Porphine, ethanediylbis[5,5'-(2,3,7,8,12,13,17,18-octapropyl-, biscopper(II)						
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.09$; $\lambda_{exc} = 347$ nm.		91E392
2.73	Porphine, 2,3,7,8,12,13,17,18-octaethyl- (Octaethylporphyrin, OEP)						
	C ₆ H ₅ CH ₃	air ^a	0.75	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$.		89A504 87E667
	C ₆ H ₅ CH ₃	air ^a	0.75	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.		91E392
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.72$; $\lambda_{exc} = 347$ nm.		91E392
2.74	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, cadmium(II) (CdOEP)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.80	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.75	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, copper(II)						
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 347$ nm.		91E392
2.76	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, lead(II)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.78	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.77	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, indium(II)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.76	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.78	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, oxotitanium(IV)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.80	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.79	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, oxovanadium(IV)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.84	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.80	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, palladium(II)						
	C ₆ H ₅ CH ₃	air ^a	1		Reference value, same as PdMPDME, see 2.73, 2.83.		
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.86$; $\lambda_{exc} = 347$ nm.		91E392
2.81	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, scandium(III)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.88	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.82	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, dichlorotin(IV)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.40	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.		87E667
2.83	Porphine, 2,3,7,8,12,13,17,18-octaethyl-, zinc(II) (ZnOEP)						
	C ₆ H ₅ CH ₃	air ^a	0.85	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$.		89A504 87E667 87E543
	C ₆ H ₅ CH ₃	air ^a	0.85	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.		91E392
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.72$; $\lambda_{exc} = 347$ nm.		91E392
	CH ₃ CN	air ^a	0.75	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm.		87E543
2.84	Porphine, 2,3,7,8,12,13,17,18-octaethyl-2,3-dihydro-						
	C ₆ H ₅ CH ₃	air ^a	0.60	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$.		89A504
2.85	Porphine, 2,3,7,8,12,13,17,18-octaethyl-5-methyl-						
	C ₆ H ₅ CH ₃	air ^a	0.74	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{Q_2} = 1$.		90E615
	C ₆ H ₅ CH ₃	air ^a	0.75	PL/LI-56	S' = PdOEP; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{exc} = 347$ nm.		91E392
	CCl ₄	air ^a		PL/LI-56	S' = GaTPP; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.77$; $\lambda_{exc} = 347$ nm.		91E392

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.86	Porphine, 2,3,7,8,12,13,17,18-octaethyl-5-methyl-, copper(II)						
	CCl ₄	air ^a			PL/LI-56	S' = GaTPP; meas. Φ _Δ (S)/Φ _Δ (S') = 0.25; λ _{exc} = 347 nm.	91E392
2.87	Porphine, 2,3,7,8,12,13,17,18-octaethyl-5-methyl-, zinc(II)						
	C ₆ H ₅ CH ₃	air ^a	0.85		PL/LI-56	S' = PdOEP; rel. to Φ _Δ (S') = 1 ^b ; λ _{exc} = 347 nm.	91E392
	CCl ₄	air ^a			PL/LI-56	S' = GaTPP; meas. Φ _Δ (S)/Φ _Δ (S') = 0.78; λ _{exc} = 347 nm.	91E392
2.88	Porphine, 2,3,7,8,12,13,17,18-octaethyl-21-methyl-						
	C ₆ H ₅ CH ₃	air ^a	0.55		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.89	Porphine, 2,3,7,8,12,13,17,18-octaethyl-5-phenyl-						
	C ₆ H ₅ CH ₃	air ^a	0.54		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm. P _T ^{O₂} = 1.	90E615
2.90	Porphine, 2,3,7,8,12,13,17,18-octamethyl-5,10,15,20-tetraphenyl-						
	C ₆ H ₅ CH ₃	air ^a	0.52		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.91	Porphine, 2,3,7,8-tetraethyl-						
	C ₆ H ₅ CH ₃	air ^a	0.64		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.92	Porphine, 2,3,12,13-tetraethyl-						
	C ₆ H ₅ CH ₃	air ^a	0.72		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.93	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl- (Etioporphyrin I)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.75		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E667 89A504
2.94	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-, zinc(II)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.80		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E667 89A504
2.95	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-5,10-dinitro-						
	C ₆ H ₅ CH ₃	air ^a	0.33		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.96	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-5,10-dinitro-, zinc(II)						
	C ₆ H ₅ CH ₃	air ^a	0.44		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.97	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-5,15-dinitro-						
	C ₆ H ₅ CH ₃	air ^a	0.31		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.98	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-5,15-dinitro-, zinc(II)						
	C ₆ H ₅ CH ₃	air ^a	0.34		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.99	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-5-nitro-						
	C ₆ H ₅ CH ₃	air ^a	0.57		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.100	Porphine, 2,7,12,17-tetraethyl-3,8,13,18-tetramethyl-5,10,15-trinitro-						
	C ₆ H ₅ CH ₃	air ^a	0.36		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.101	Porphine, 7,8,17,18-tetrahydro-5,10,15,20-tetraphenyl-, (E) (Tetraphenylbacteriochlorin, TPBC)						
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.48		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667 89A504
	CCl ₄	air	0.45		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8.	82F161
2.102	Porphine, 5,10,15,20-tetrakis(4-bromophenyl)-						
	C ₆ H ₅ CH ₃	air ^a	0.81		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.103	Porphine, 5,10,15,20-tetrakis(4-carboxyphenyl)-						
	H ₂ O	air ^a	0.70		PL/LI,St-55,42	S' = HP; rel. to f _Δ ^T (S') = 0.51; meas. Φ _T (S) = 0.76; λ _{exc} = 532 nm. Δε _T (S) = 27,000 L mol ⁻¹ cm ⁻¹ at 440 nm; Φ _Δ = 0.53 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1	86A407
	pH = 7.4						

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ _Δ	f _Δ ^T	Method	Comment	Ref.
2.103	Porphine, 5,10,15,20-tetrakis(4-carboxyphenyl)—Continued						
	H ₂ O pH = 7	air	0.58		CP/Pa-43	S' = H ₂ TMpyP ⁴⁺ ; A = Im; P = Imidazole endoperoxide; rel. to ϕ _Δ (S') = 0.74; λ _{exc} = 546 nm. RNO as monitor of P.	84F253
	H ₂ O pH = 7	air	0.58		CP/Oc-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to ϕ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA.	84F253
	H ₂ O (mic)	air ^a	0.98	PL/LI,St-55,42		S' = HP; rel. to f _Δ ^T (S') = 0.67; meas. ϕ _T (S) = 0.85; λ _{exc} = 532 nm. Δε _T (S) = 36,500 L mol ⁻¹ cm ⁻¹ at 440 nm; ϕ _Δ = 0.83 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; soln. cont. 2% Triton X-100.	86A407
2.104	Porphine, 5,10,15,20-tetrakis(2-chlorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.84	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.105	Porphine, 5,10,15,20-tetrakis(3-chlorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.81	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.106	Porphine, 5,10,15,20-tetrakis(4-chlorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.71	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.107	Porphine, 5,10,15,20-tetrakis(2,6-dichloro-3-sulfonatophenyl)-, zinc(II)	H ₂ O pH = 7	O ₂	0.74	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.62. ϕ _Δ = 0.76 for dye bound with human serum albumin.	90R041
2.108	Porphine, 5,10,15,20-tetrakis(2-fluorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.71	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.109	Porphine, 5,10,15,20-tetrakis(2-fluorophenyl)-, zinc(II)	C ₆ H ₅ CH ₃	air ^a	0.93	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.110	Porphine, 5,10,15,20-tetrakis(4-fluorophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.65	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.111	Porphine, 5,10,15,20-tetrakis(2-hydroxyphenyl)-	MeOD	air	0.65*	PL/LI-56,42	S' = HP; rel. to ϕ _Δ (S') = 0.53; meas. ϕ _T (S) = 0.68; λ _{exc} = 347 nm. f _Δ ^T = 1 assuming P _S ^{O₂} = 0. P _T ^{O₂} = 1; recalcd. using ϕ _Δ (S') = 0.64 from [88Z155].	88E519
				0.54			
2.112	Porphine, 5,10,15,20-tetrakis(3-hydroxyphenyl)-	EtOH	air ^a	0.50	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70; λ _{exc} = 514,5 nm.	90R204
	MeOD	air	0.69*	PL/LI-56,42		S' = HP; rel. to ϕ _Δ (S') = 0.53; meas. ϕ _T (S) = 0.69; λ _{exc} = 347 nm. f _Δ ^T = 1 assuming P _S ^{O₂} = 0. P _T ^{O₂} = 1; recalcd. using ϕ _Δ (S') = 0.64 from [88Z155].	88E519
			0.57				
2.113	Porphine, 5,10,15,20-tetrakis(4-hydroxyphenyl)- (T(p-HOP)P)	EtOH	air ^a	0.58	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to ϕ _Δ (S') = 0.70; λ _{exc} = 514.5 nm.	90R204
	MeOD	air	0.70*	PL/LI-56,42		S' = HP; rel. to ϕ _Δ (S') = 0.53; meas. ϕ _T (S) = 0.65; λ _{exc} = 347 nm. f _Δ ^T = 1 assuming P _S ^{O₂} = 0. P _T ^{O₂} = 1; recalcd. using ϕ _Δ (S') = 0.64 from [88Z155].	88E519
			0.56				
2.114	Porphine, 5,10,15,20-tetrakis(4-iodophenyl)-	C ₆ H ₅ CH ₃	air ^a	0.97	PL/LI-56	S' = PdMPDME; rel. to ϕ _Δ (S') = 1.0.	89A504
2.115	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-2-yl)-	H ₂ O pH = 7	air	0.68	CP/Oc or Pa-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to ϕ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA, assumed P _T ^{O₂} = 1.	86R162
2.116	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-3-yl)-	H ₂ O pH = 7	air	0.77	CP/Oc or Pa-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to ϕ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA, assumed P _T ^{O₂} = 1.	86R162

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.117	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)- (H ₂ TMpyP ⁴⁺)						
	H ₂ O pH = 7 air		0.74		CP/Oc-14	A = FFA; λ_{exc} = 436 nm. $P_T^{O_2} = 1$.	84F253
2.118	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, cadmium(II)						
	H ₂ O pH = 7 air		0.75		CP/Oc-43	$S' = H_2\text{TMpyP}^{4+}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 546$ nm.	84F253
2.119	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, cobalt(II)						
	H ₂ O pH = 7 air		<0.001		CP/Oc or Pa-43	$S' = H_2\text{TMpyP}^{4+}$; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 436$ or 546 nm. A = Im or FFA.	84F253
2.120	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, copper(II)						
	H ₂ O pH = 7 air		<0.001		CP/Oc or Pa-43	$S' = H_2\text{TMpyP}^{4+}$; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 436$ or 546 nm. A = Im or FFA.	84F253
2.121	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, iron(II)						
	H ₂ O pH = 7 air		<0.001		CP/Oc or Pa-43	$S' = H_2\text{TMpyP}^{4+}$; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 436$ or 546 nm. A = Im or FFA, assumed $P_T^{O_2} = 1$.	86R162
2.122	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, lutetium(III)						
	D ₂ O pD = 7 O ₂		0.78		PL/LI-56	$S' = \text{AlPCS}$; rel. to $\phi_{\Delta}(S') = 0.34$.	91E452
2.123	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, magnesium(II)						
	H ₂ O pH = 7 air		0.69		CP/Oc-43	$S' = H_2\text{TMpyP}^{4+}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 546$ nm.	84F253
2.124	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, manganese(III)						
	H ₂ O pH = 7 air		<0.001		CP/Oc or Pa-43	$S' = H_2\text{TMpyP}^{4+}$; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 436$ or 546 nm. A = Im or FFA.	84F253
2.125	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, nickel(II)						
	H ₂ O pH = 7 air		<0.001		CP/Oc or Pa-43	$S' = H_2\text{TMpyP}^{4+}$; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 436$ or 546 nm. A = Im or FFA, assumed $P_T^{O_2} = 1$.	86R162
2.126	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, palladium(II)						
	H ₂ O pH = 7 air		0.12		CP/Oc-43	$S' = H_2\text{TMpyP}^{4+}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 546$ nm. $P_T^{O_2} \neq 1$.	84F253
2.127	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, tin(IV)						
	H ₂ O pH = 7 air		0.78		CP/Pa-43	$S' = H_2\text{TMpyP}^{4+}$; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 546$ nm. RNO as monitor of P.	84F253
2.128	Porphine, 5,10,15,20-tetrakis(1-methylpyridinium-4-yl)-, zinc(II)						
	H ₂ O pH = 7 air		0.88		CP/Oc-43	$S' = H_2\text{TMpyP}^{4+}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 546$ nm.	84F253
2.129	Porphine, tetrakis(4-sulfonatophenyl)-						
	D ₂ O pH = 7 O ₂		0.64		PL/LI-56	meas. $\phi_T(S) = 0.79$; $\lambda_{exc} = 532$ nm. Rel. to $\phi_{\Delta} = 0.62$ for H ₂ TPPS ⁴⁻ in H ₂ O; soln. contg. 2×10^{-3} mol L ⁻¹ phosphate buffer and 1% NaCl wt/wt.; $P_T^{O_2} = 1$.	90A022
	D ₂ O	2.45×10^{-4}	0.76		PL/LI-56	$S' = \text{PdTTPS}^{4-}$; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.	87E941
	D ₂ O	air ^a	0.42		PL/LI-56	$S' = \text{TPP}$; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 337$ nm. Rel. to TPP in CCl ₄ .	86F316
	H ₂ O pH = 7.4	O ₂	0.71		CP/Oc-14	A = Im; $\lambda_{exc} = 540$ nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
	H ₂ O pH = 7.4	O ₂	0.33		PL/Ac-14	A = TrpH; $\lambda_{exc} = 630$ nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
	H ₂ O pH = 7.4	O ₂	0.48		CP/Pa-43	$S' = \text{RB}$; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 540$ nm. Soln. cont. 1.6% NaCl in phosphate buffer; RNO as monitor for P.	88N170
	H ₂ O pH = 7.4	O ₂	0.50		CP/Ac-14	A = TrpH; $\lambda_{exc} = 540$ nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170

Table 2. Quantum yields of photosensitized production of singlet oxygen, from porphyrins and related species.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.129	Porphine, tetrakis(4-sulfonatophenyl)—Continued						
	H ₂ O pH = 7.4	air ^a	1.3	PL/LI,St-55,42	S' = HP; rel. to f _Δ ^T (S') = 0.51; meas. Φ _T (S) = 0.57; λ _{exc} = 532 nm. Δε _T (S) = 52,000 L mol ⁻¹ cm ⁻¹ at 440 nm; Φ _Δ = 0.75 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.		86A407
	H ₂ O pH = 7	air	0.62	CP/Oc or Pa-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to Φ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA.		84F253
	H ₂ O pH = 7	air	0.67	CP/Pa-43	S' = H ₂ TMpyP ⁴⁺ ; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.74; λ _{exc} = 546 nm. RNO as monitor of P.		84F253
	H ₂ O (mic)	air ^a	1.2	PL/LI,St-55,42	S' = HP; rel. to f _Δ ^T (S') = 0.67; meas. Φ _T (S) = 0.65; λ _{exc} = 532 nm. Δε _T (S) = 57,000 L mol ⁻¹ cm ⁻¹ at 440 nm; Φ _Δ = 0.80 assuming P _S ^{O₂} = 0; soln. cont. 2% Triton X-100.		86A407
2.130	Porphine, 5,10,15,20-tetrakis(4-sulfonatophenyl)-, palladium(II)	D ₂ O	2.45 × 10 ⁻⁴	1.0		λ _{exc} = 347 nm. Φ _T = 1; used as reference value.	87E941
2.131	Porphine, 5,10,15,20-tetrakis(4-sulfonatophenyl)-, dichlorotin(IV)	D ₂ O pH = 7	O ₂	0.77	PL/LI-5G	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.62; meas. Φ _T (S) = 1.0; λ _{exc} = 532 nm. Rel. to S' in H ₂ O; soln. contg. 2 × 10 ⁻³ mol L ⁻¹ phosphate buffer and 1% NaCl wt/wt.; P _T ^{O₂} = 1.	90A022
	H ₂ O pH = 7	air	0.67	CP/Oc or Pa-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to Φ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA, assumed P _T ^{O₂} = 1.		86R162
2.132	Porphine, 5,10,15,20-tetrakis(4-sulfonatophenyl)-, ytterbium(II)	H ₂ O pH = 7.0	O ₂	0.04	CP/Pa-43	S' = RB; A = His; rel. to Φ _Δ (S') = 0.75. RNO as monitor of P.	89F580
2.133	Porphine, 5,10,15,20-tetrakis(4-sulfonatophenyl)-, zinc(II)	D ₂ O	2.45 × 10 ⁻⁴	0.77	PL/LI-56	S' = PdTPPS ⁴⁻ ; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E941
2.134	Porphine, 5,10,15,20-tetrakis(4-trimethylammoniophenyl)-	H ₂ O pH = 7.4	air ^a	0.85	PL/LI,St-55,42	S' = HP; rel. to f _Δ ^T (S') = 0.51; meas. Φ _T (S) = 0.56; λ _{exc} = 532 nm. Δε _T (S) = 48,000 L mol ⁻¹ cm ⁻¹ at 440 nm; Φ _Δ = 0.48 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.	86A407
	H ₂ O pH = 7	air	0.77	CP/Oc or Pa-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to Φ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA.		84F253
	H ₂ O pH = 7	air	0.69	CP/Pa-43	S' = H ₂ TMpyP ⁴⁺ ; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.74; λ _{exc} = 546 nm. RNO as monitor of P.		84F253
	H ₂ O (mic)	air ^a	1.3	PL/LI,St-55,42	S' = HP; rel. to f _Δ ^T (S') = 0.67; meas. Φ _T (S) = 0.58; λ _{exc} = 532 nm. Δε _T (S) = 53,000 L mol ⁻¹ cm ⁻¹ at 440 nm; Φ _Δ = 0.73 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; Soln. cont. 2% Triton X-100.		86A407
2.135	Porphine, 3,7,12,18-tetramethyl-2,8-diethyl-	C ₆ H ₅ CH ₃	air ^a	0.67	PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0.	89A504
2.136	Porphine, 5,10,15,20-tetraphenyl- (TPP)	C ₅ H ₅ N	O ₂	0.74	CP/Oc-14	A = H ₂ NCSNH ₂ ; λ _{exc} = 430 nm. Assumed f _r ^A = 2.	737347 74E522
	n-C ₃ H ₇ I	air	0.77	CP/Ac-14	A = DPBF.	90E215	
	c-C ₄ H ₈ O	air	0.62	CP/Ac-14	A = DPBF.	90E215	
	c-C ₆ H ₁₂	air	0.67	CP/Ac-14	A = DPBF.	90E215	
	C ₆ D ₅ Br	air	0.69	CP/Ac-14	A = DPBF.	90E215	
	C ₆ D ₆	air	0.62	CP/Ac-14	A = DPBF.	90E215	
	C ₆ F ₅ Br	air	0.66	CP/Ac-14	A = DPBF.	90E215	
	C ₆ F ₅ Cl	air	0.57	CP/Ac-14	A = DPBF.	90E215	
	C ₆ F ₅ I	air	0.75	CP/Ac-14	A = DPBF.	90E215	
	C ₆ F ₆	air	0.57	CP/Ac-14	A = DPBF.	90E215	

Table 2. Quantum yields of photosensitized production of singlet oxygen, from porphyrins and related species.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.136 Porphine, 5,10,15,20-tetraphenyl- (TPP)—Continued							
	C ₆ H ₅ CH ₃	1.1 × 10 ⁻³	0.69		PL/LI-56	S' = PdTPP; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E941
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.70		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667
							89A504
	C ₆ H ₅ CH ₃	8.5 × 10 ⁻³	0.88		CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50. Rel. to S' in MeOH.	84F191
	C ₆ H ₅ CH ₃	O ₂	0.88		CP/Tr,St-51	A = DPBF; λ _{exc} = 546 nm; used ϕ _F (S) = 0.05. Measured Φ _{ox} = 0.88 and ΔH _{ox} = -185 kJ mol ⁻¹ .	80C002
	C ₆ H ₅ Br	air	0.69		CP/Ac-14	A = DPBF.	90E215
	C ₆ H ₅ Cl	air	0.61		CP/Ac-14	A = DPBF.	90E215
	C ₆ H ₅ F	air	0.60		CP/Ac-14	A = DPBF.	90E215
	C ₆ H ₅ I	air	0.70		CP/Ac-14	A = DPBF.	90E215
	C ₆ H ₆	0.1 × 10 ⁻³	0.41 ^T	0.71	PL/LI-56,38	S' = Pz; rel. to Φ _Δ (S') = 0.83; λ _{exc} = 532 nm; used ϕ _T (S) = 0.63. P _T ^{O₂} = 1.	90A328
	C ₆ H ₆	air	0.55	0.74	PL/LI-56,42	S' = Pz; rel. to Φ _Δ (S') = 0.83; used ϕ _T (S) = 0.63. P _T ^{O₂} = 1; assumed f _T ^{O₂} = 1.	90A328
	C ₆ H ₆	air	0.62		CP/Ac-14	A = DPBF. Ave. with value from [89E223].	90E215
	C ₆ H ₆	air	0.67		CP/Ac-14	A = MDH. f _r ^A = 0.30.	89E223
	C ₆ H ₆	air	0.72*		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. ϕ _T (S) = 0.67; λ _{exc} = 347 nm. f _Δ ^T = 0.92 assuming P _T ^{O₂} = 0; P _T ^{O₂} = 1.	88E519
	C ₆ H ₆	air	0.63				
	C ₆ H ₆	air	0.58		PL/Hp-52	λ _{exc} = 590 nm.	85E591
	C ₆ H ₆	9 × 10 ⁻³	0.62		PL/LI-56	S' = Pz; rel. to Φ _Δ (S') = 0.83.	90A328
	C ₆ H ₆	9.1 × 10 ⁻³	0.89		CP/Oc-43	S' = MB ⁺ ; A = TME; rel. to Φ _Δ (S') = 0.50. Rel. to S' in MeOH.	84F191
	CCl ₄	air	0.62			See Table 4.	
	CCl ₄	air	0.54		CP/Ac-14	A = MDH. f _r ^A = 0.30.	89E223
	CCl ₄	air	0.65		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8. P _T ^{O₂} = 1.	82F161
	CCl ₄	air	0.7		MP/LI-56	S' not given, probably Chl a, Φ _Δ = 0.55.	81E631
	CCl ₄	O ₂	0.88		CP/Tr-51	λ _{exc} = 546 nm. A = DPBF, 2,5-DMF and TME; measured ϕ _F , Φ _{ox} = 0.88 and ΔH _{ox} = -205, -95, and -175 kJ mol ⁻¹ for DPBF, 2,5-DMF and TME, resp.; P _T ^{O₂} = 1.	80C002
	CH ₃ CN	air	0.60		CP/Ac-14	A = DPBF. Ave. with value from [89E223].	90E215
	CH ₃ CN	air	0.50		CP/Ac-14	A = MDH. f _r ^A = 0.30.	89E223
	CHCl ₃	air	0.55		CP/Ac-14	A = DPBF. Ave. with value from [89E223].	90E215
	CHCl ₃	air	0.50		CP/Ac-14	A = MDH. f _r ^A = 0.30.	89E223
	CS ₂	air	0.51		CP/Ac-14	A = MDH. f _r ^A = 0.30.	89E223
	ClCF ₂ CCl ₂ F	air	0.41		CP/Ac-14	A = MDH. f _r ^A = 0.30.	89E223
	ClCF ₂ CCl ₂ F	O ₂	~1		CP/Tr-51	A = DPBF; λ _{exc} = 404 nm. Measured ϕ _F (S) = 0.03, Φ _{ox} = 1.0 and ΔH _{ox} = -195 kJ mol ⁻¹ ; P _T ^{O₂} = 1	80C002
	2-EtNp	air	0.63		CP/Ac-14	A = DPBF.	90E215
	1-MeNp	air	0.34		CP/Ac-14	A = DPBF.	90E215
2.137 Porphine, tetraphenyl-, cadmium(II)							
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.96		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667
	C ₆ H ₅ CH ₃	1.1 × 10 ⁻³	0.98		PL/LI-56	S' = PdTPP; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E941
2.138 Porphine, 5,10,15,20-tetraphenyl-, chloroaluminum(III)							
	CCl ₄	air	0.90		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8.	82F161
2.139 Porphine, 5,10,15,20-tetraphenyl-, cobalt(II)							
	CCl ₄	air	<0.01		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8.	82F161
2.140 Porphine, 5,10,15,20-tetraphenyl-, copper(II)							
	CCl ₄	air	<0.01		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8.	82F161

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.141	Porphine, 5,10,15,20-tetraphenyl-, dichlorotin(IV)						
	CCl ₄	air	0.55		MP/LI-56	$S' = \text{Ph a}$; rel. to $\phi_{\Delta}(S') = 0.8$.	82F161
2.142	Porphine, 5,10,15,20-tetraphenyl-, gallium(II)						
	C ₆ H ₅ CH ₃	air ^a	0.85		PL/LI-56	$S' = \text{PdOEP}$; rel. to $\phi_{\Delta}(S') = 1^b$; $\lambda_{\text{exc}} = 347 \text{ nm}$.	91E392
2.143	Porphine, 5,10,15,20-tetraphenyl-, iron(III)						
	CCl ₄	air	<0.01		MP/LI-56	$S' = \text{Ph a}$; rel. to $\phi_{\Delta}(S') = 0.8$.	82F161
2.144	Porphine, 5,10,15,20-tetraphenyl-, manganese(III)						
	CCl ₄	air	<0.01		MP/LI-56	$S' = \text{Ph a}$; rel. to $\phi_{\Delta}(S') = 0.8$.	82F161
2.145	Porphine, 5,10,15,20-tetraphenyl-, nickel(II)						
	CCl ₄	air	<0.01		MP/LI-56	$S' = \text{Ph a}$; rel. to $\phi_{\Delta}(S') = 0.8$.	82F161
2.146	Porphine, 5,10,15,20-tetraphenyl-, zinc(II) (ZnTPP)						
	C ₅ H ₅ N	O ₂	0.79		CP/Oc-14	$A = \text{H}_2\text{NCSNH}_2$; $\lambda_{\text{exc}} = 405 \text{ nm}$. Assumed $f_r^A = 2$.	737347 74E522
	C ₆ H ₅ CH ₃	air ^a	0.92		PL/LI-56	$S' = \text{PdMPDME}$; rel. to $\phi_{\Delta}(S') = 1.0$.	89A504 87E667
	C ₆ H ₅ CH ₃	1.1 × 10 ⁻³	0.93		PL/LI-56	$S' = \text{PdTPP}$; rel. to $\phi_{\Delta}(S') = 1.0$.	87E941
	C ₆ H ₆	0.1 × 10 ⁻³	0.57 ^T	0.65	PL/LI-56,42	$S' = \text{Pz}$; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{\text{exc}} = 532 \text{ nm}$; used $\phi_T(S) = 0.87$. $P_T^{O_2} = 1$.	90A328
	C ₆ H ₆	air		0.78	PL/LI-56,38	$S' = \text{Pz}$; rel. to $f_{\Delta}^T(S') = 1.0$; $\lambda_{\text{exc}} = 532 \text{ nm}$. $P_T^{O_2} = 1$.	90A328
	C ₆ H ₆	air	0.68		PL/LI-56	$S' = \text{Pz}$; rel. to $\phi_{\Delta}(S') = 0.83$. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$.	90A328
	C ₆ H ₆	air	0.73		PL/Hp-52	$\lambda_{\text{exc}} = 560 \text{ nm}$.	85E591
	C ₆ H ₆	O ₂	0.75		PL/LI-56	$S' = \text{Pz}$; rel. to $\phi_{\Delta}(S') = 0.83$. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$.	90A328
	CCl ₄	air	0.50		MP/LI-56	$S' = \text{Ph a}$; rel. to $\phi_{\Delta}(S') = 0.8$. $P_T^{O_2} = 1$.	82F161
2.147	Porphine, 5,10,15,20-tetrapropyl-						
	C ₆ H ₅ CH ₃	air ^a	0.74		PL/LI-56	$S' = \text{PdMPDME}$; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{\text{exc}} = 347 \text{ nm}$. $P_T^{O_2} = 1$.	90E615
2.148	Porphine, 5,10,15-tris(4-N-methylpyridyl)-20-[2-[N-[20-[5,10,15-tris(4-N-methylpyridylporphinyll-3-phenoxypropyl]-4-carboxamidobutyl]phenyl]-						
	H ₂ O pH = 7	air	0.69		CP/Oc or Pa-43	$S' = \text{H}_2\text{TMpyP}^{4+}$; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{\text{exc}} = 436$ or 546 nm. A = Im or FFA, assumed $P_T^{O_2} = 1$.	86R162
2.149	Porphine-5-carboxaldehyde, 21,23-dideuterio-2,3,7,8,12,13,17,18-octaeethyl-						
	C ₆ H ₅ CH ₃	air ^a	0.63		PL/LI-56	$S' = \text{PdMPDME}$; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{\text{exc}} = 347 \text{ nm}$. $P_T^{O_2} = 1$.	90E615
2.150	Porphine-5-carboxaldehyde, 2,3,7,8,12,13,17,18-octaeethyl-						
	C ₆ H ₅ CH ₃	air ^a	0.63		PL/LI-56	$S' = \text{PdMPDME}$; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{\text{exc}} = 347 \text{ nm}$. $P_T^{O_2} = 1$.	90E615 89A504
2.151	Porphine-2,20-dicarboxylic acid, 18-(20-carboxyethyl)-12-ethenyl-7-ethyl-17,18-dihydro-3,8,13,17-tetramethyl-, cyclic 2,20-anhydride						
	(C ₂ H ₅) ₂ O	4 × 10 ⁻³	0.83		PL/LI-56	$S' = \text{PdMPDME}$; rel. to $\phi_{\Delta}(S') = 1$.	90E401
2.152	Porphine-2,18-dipropanoic acid, 7,12-bis[1-[(2-amino-2-carboxyethyl)thio]ethyl]-3,8,13,17-tetramethyl- (Porphyrin c)						
	H ₂ O pH = 7.5	O ₂	0.40		CP/Oc-43	$S' = \text{RB}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{\text{exc}} = 360, 400 \text{ nm}$.	89F093
	H ₂ O pH = 7.5	O ₂	0.59		CP/Oc-43	$S' = \text{RB}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{\text{exc}} = 555, 580 \text{ nm}$. Meas. $\phi_{\Delta} = 0.33$ for porphyrin c aggregate.	89F093
2.153	Porphine-2,18-dipropanoic acid, 7,12-bis[1-[(2-amino-2-carboxyethyl)thio]ethyl]-3,8,13,17-tetramethyl-, zinc(II)						
	H ₂ O pH = 7.5	O ₂	0.29		CP/Oc-43	$S' = \text{RB}$; A = FFA; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{\text{exc}} = 400, 575 \text{ nm}$.	89F093

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.154 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl- (Hematoporphyrin, HP)							
D ₂ O	air ^a	0.28			PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
D ₂ O (mic)	air ^a	0.77			PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. contg. 2% Triton X-100.	89E729
D ₂ O (mic)	air ^a	0.35			PL/LI-56,42	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.67; meas. φ _T (S) = 0.71; λ _{exc} = 347 nm. f _Δ ^T = 0.49 assuming P _S ^{O₂} = 0. Soln. cont. 10 ⁻² mol L ⁻¹ CTAB.	87R188
D ₂ O (mic)	O ₂				PL/LI-56,42	S' = HP; meas. φ _Δ (S)/φ _Δ (S') = 2.3; λ _{exc} = 355 nm; used φ _T (S) = 0.90. Calculated f _Δ ^T (S)/f _Δ ^T (S') = 2.43. Soln. cont. 0.01 mol L ⁻¹ CTAB; rel. to HP in D ₂ O.	86E061
D ₂ O (mic)	air ^a	0.35			PL/LI-56,42	S' = H ₂ TPPS ⁴⁻ ; meas. φ _T (S) = 0.94; λ _{exc} = 347 nm. f _Δ ^T = 0.37 assuming P _S ^{O₂} = 0. Soln. cont. CTAB micelles.	86F541
D ₂ O (mic) pD = 7.4	O ₂	0.22	0.32		PL/Ad-49,39	A = DPBF; AC = S; meas. φ _T (S) = 0.70; λ _{exc} = 532 nm; used k _A = 1 × 10 ⁹ L mol ⁻¹ s ⁻¹ . Δε _T (S) = 9,770 L mol ⁻¹ cm ⁻¹ at 460 nm; soln. cont. 0.01 mol L ⁻¹ CTAB; value questioned in [84F327].	83E667
D ₂ O (mic) pD = 7.4	O ₂	0.27	0.32		PL/Ad-49,39	A = DPBF; AC = S; meas. φ _T (S) = 0.87; λ _{exc} = 532 nm; uscd k _A = 1 × 10 ⁹ L mol ⁻¹ s ⁻¹ . Δε _T (S) = 6,660 L mol ⁻¹ cm ⁻¹ at 460 nm; soln. cont. 0.07 mol L ⁻¹ SDS.	83E667
D ₂ O/EtOH (7:3)	air ^a	0.21			PL/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7; λ _{exc} = 337 nm. Rel. to TPP in CCl ₄ .	86F316
EtOH	air ^a	0.60			PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 514.5 nm.	90R204
EtOH	air ^a	0.67			PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
EtOH	air	0.53			PL/Hp-52,42	meas. φ _T (S) = 0.71; λ _{exc} = 354 nm. f _Δ ^T = 0.75 assuming P _S ^{O₂} = 0.	87E054
EtOH-d ₁	O ₂	0.53			PL/Hp-52	λ _{exc} = 354 nm.	88Z155
EtOH-d ₆	O ₂	0.53			PL/Hp-52	λ _{exc} = 354 nm.	88Z155
H ₂ O pH = 7.0	O ₂	0.48			CP/Pa-43	S' = RB; A = His; rel. to φ _Δ (S') = 0.75. RNO as monitor of P.	89F580
H ₂ O pH = 7.4	O ₂	0.08			CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to φ _Δ (S') = 0.75; λ _{exc} = 540 nm. Soln. cont. 1.6% NaCl in phosphate buffer; RNO as monitor for P.	88N170
H ₂ O pH = 7.4	O ₂	0.37			CP/Oc-14	A = Im; λ _{exc} = 540 nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
H ₂ O pH = 7.4	O ₂	0.04			PL/Ac-14	A = TrpH; λ _{exc} = 630 nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
H ₂ O pH = 7.4	O ₂	0.16			CP/Ac-14	A = TrpH; λ _{exc} = 540 nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
H ₂ O pH = 7.4	air ^a		0.51		PL/LI/St-55,42	meas. φ _T (S) = 0.63; λ _{exc} = 532 nm. Δε _T (S) = 4200 L mol ⁻¹ cm ⁻¹ at 440 nm; φ _Δ = 0.32 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; rel. to f _Δ ^T = 0.67 for HP in micellar soln.	86A407
H ₂ O pH = 7.4	O ₂	0.45			CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to φ _Δ (S') = 0.75; λ _{exc} = 546 nm. RNO as monitor of P; φ _Δ = 0.36 to 0.47 at [S] = (18-160) × 10 ⁻⁶ , 0.35 at pH 7.0 at [S] = 3.0 × 10 ⁻⁵ mol L ⁻¹ .	85R008
H ₂ O pH = 7.4	O ₂	0.41	0.65		PL/Ad-49,39	A = DPBF; AC = S; λ _{exc} = 532 nm; used k _A = 1 × 10 ⁹ L mol ⁻¹ s ⁻¹ , φ _T (S) = 0.63, ε _T (AC) = 4200 L mol ⁻¹ cm ⁻¹ at 460 nm. Δε _T (S) = 4,200 L mol ⁻¹ cm ⁻¹ at 460 nm; authors suggest this supersedes f _Δ ^T = 0.32 determined in [83E667].	84F327
H ₂ O pH = 7	air	0.22			CP/Oc-43	S' = H ₂ TMpyP ⁴⁺ ; A = FFA; rel. to φ _Δ (S') = 0.74; λ _{exc} = 546 nm.	84F253
H ₂ O pH = 9	air	0.44			CP/Oc-43	S' = H ₂ TMpyP ⁴⁺ ; A = FFA; rel. to φ _Δ (S') = 0.74; λ _{exc} = 436 nm.	84F253
H ₂ O pH = 7	air	0.20			CP/Pa-43	S' = H ₂ TMpyP ⁴⁺ ; A = Im; P = Imidazole endoperoxide; rel. to φ _Δ (S') = 0.74; λ _{exc} = 546 nm. RNO as monitor of P.	84F253
H ₂ O (mic)	air ^a	0.53	0.67		PL/Ad-49,39	A = DPBF; AC = S; meas. φ _T (S) = 0.78; λ _{exc} = 532 nm. Δε _T (S) = 9,200 L mol ⁻¹ cm ⁻¹ at 460 nm; P _T ^{O₂} = 1; Soln. cont. 2% Triton X-100.	86A407

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ _Δ	f _Δ ^T	Method	Comment	Ref.
2.154 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl- (Hematoporphyrin, HP)—Continued							
	H ₂ O (mic) pH = 7.4	O ₂	0.77		CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to ϕ _Δ (S') = 0.75; λ _{exc} = 546 nm. Soln. cont. 0.23 mg/mL egg phosphatidylcholine; RNO as monitor of P.	85R008
	HCONH ₂ /D ₂ O (9:1)	O ₂	0.43	0.60	PL/Ad-49,39	A = DPBF; AC = S; meas. ϕ _T (S) = 0.72; λ _{exc} = 532 nm; used k _A = 1.1 × 10 ⁹ L mol ⁻¹ s ⁻¹ . Δε _T (S) = 10,200 L mol ⁻¹ cm ⁻¹ at 460 nm.	83E667
	MeOD	O ₂	0.64		PL/Hp-52	λ _{exc} = 354 nm.	88Z155
	MeOH	air ^a	0.52		PL/LI-56	S' = Ery; rel. to ϕ _Δ (S') = 0.60.	87R138
	MeOH/D ₂ O (9:1)	O ₂	0.65	0.78	PL/Ad-49,39	A = DPBF; AC = S; meas. ϕ _T (S) = 0.83; λ _{exc} = 532 nm; used k _A = 1 × 10 ⁹ L mol ⁻¹ s ⁻¹ . Δε _T (S) = 10,400 L mol ⁻¹ cm ⁻¹ at 460 nm; P _T ^{O₂} = 1.	83E667
2.155 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, cobalt(III)							
	H ₂ O pH = 7	air	<0.001		CP/Oc-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to ϕ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA.	84F253
2.156 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, copper(II)							
	H ₂ O pH = 8.0	air	0		CP/Pa-43	S' = HP; A = 2,2,6,6-Tetramethyl-4-piperidone; P = 2,2,6,6-Tetramethyl-4-piperidone N-oxyl. P monitored by esr.	83N270
	H ₂ O pH = 8.0	air	0		CP/Pa-43	S' = HP; A = Im; P = Imidazole endoperoxide. Tris-buffer, RNO as monitor of P.	83N270
2.157 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, diacetate (Hematoporphyrin diacetate)							
	H ₂ O pH = 7.0	O ₂	0.56		CP/Pa-43	S' = RB; A = His; rel. to ϕ _Δ (S') = 0.75. RNO as monitor of P.	89F580
2.158 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, dimethyl ester (HPDME)							
	C ₆ D ₆	1.2% O ₂ in N ₂	0.76		PR/LI-60	S' = Np; TD = BP; rel. to f _Δ ^T (S') = 0.55. P _T ^{O₂} = 1; cor. for energy transfer efficiency.	91A358
	C ₆ H ₆	O ₂	0.57*		PL/LI-56,42	S' = Ac; rel. to ϕ _Δ (S') = 0.73; meas. ϕ _T (S) = 0.72; λ _{exc} = 355 nm. f _Δ ^T = 0.70 assuming P _S ^{O₂} = 0.	86E061
2.159 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, manganese(III)							
	H ₂ O pH = 7	air	<0.001		CP/Oc-43	S' = H ₂ TMpyP ⁴⁺ ; rel. to ϕ _Δ (S') = 0.74; λ _{exc} = 436 or 546 nm. A = Im or FFA.	84F253
2.160 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, nickel(II)							
	DMF	O ₂	0.02		CP/Pa-43	S' = HP; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethyl-piperidine N-oxyl; rel. to ϕ _Δ (S') = 0.6 ^b . Obs. P by esr	91F203
	DMF	O ₂	0.02		CP/Ac-43	S' = HP; A = Pd(phen)(dmt); rel. to ϕ _Δ (S') = 0.6 ^b . Obs. P by esr	91F203
	DMF	O ₂	0.02		CP/Ac-43	S' = HP; A = Pd(bpy)(dmt); rel. to ϕ _Δ (S') = 0.6 ^b .	91F203
2.161 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, palladium(II)							
	DMF	O ₂	0.39		CP/Pa-43	S' = HP; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethyl-piperidine N-oxyl; rel. to ϕ _Δ (S') = 0.6 ^b . Obs. P by esr	91F203
	DMF	O ₂	0.36		CP/Ac-43	S' = HP; A = Pd(phen)(dmt); rel. to ϕ _Δ (S') = 0.6 ^b .	91F203
	DMF	O ₂	0.38		CP/Ac-43	S' = HP; A = Pd(bpy)(dmt); rel. to ϕ _Δ (S') = 0.6 ^b .	91F203
2.162 Porphine-2,18-dipropanoic acid, 7,12-bis(1-hydroxyethyl)-3,8,13,17-tetramethyl-, platinum(II)							
	DMF	O ₂	0.26		CP/Pa-43	S' = HP; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethyl-piperidine N-oxyl; rel. to ϕ _Δ (S') = 0.6 ^b . Obs. P by esr	91F203
	DMF	O ₂	0.25		CP/Ac-43	S' = HP; A = Pd(phen)(dmt); rel. to ϕ _Δ (S') = 0.6 ^b .	91F203
	DMF	O ₂	0.24		CP/Ac-43	S' = HP; A = Pd(bpy)(dmt); rel. to ϕ _Δ (S') = 0.6 ^b .	91F203
2.163 Porphine-2,18-dipropanoic acid, 7,12-bis(2-hydroxyethyl)-3,8,13,17-tetramethyl- (Isohematoporphyrin)							
	CH ₂ Cl ₂	air ^a	0.66		CP/Pa-43	S' = [22]Coproporphyrin II; Λ = 2,5-DMF. Rel. to ϕ _Δ (S') = 1.1, using ϕ _Δ (RB) = 0.80 ^b .	90R215

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.164	Porphine-2,18-dipropanoic acid, 7,12-bis(1-methoxyethyl)-3,7,12,17-tetramethyl-, dianion	D ₂ O/EtOH (7:3)	air ^a	0.49	PL/LI-56	S' = TPP; rel. to $\phi_{\Delta}(S') = 0.7$; $\lambda_{exc} = 337$ nm. Rel. to TPP in CCl ₄ .	86F316
2.165	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl- (Protoporphyrin, PP)	D ₂ O D ₂ O (mic) H ₂ O pH = 8.0	air ^a air	≤0.02 0.56 0.14	PL/LI-56 CP/Pa-43	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.70$. Colloidal soln. contg. 0.5% NH ₄ OH. S' = HP; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.4^b$. Triton X-100.	88F450 83N270
2.166	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, dimethyl ester (PPDME)	C ₂ H ₅) ₂ O C ₅ H ₅ N C ₅ H ₅ N C ₆ H ₅ CH ₃ C ₆ D ₆ C ₆ H ₆ CCl ₄ CCl ₄	air ^a O ₂ O ₂ air ^a 0.1 × 10 ⁻³ 1.2% O ₂ in N ₂ air air air ^a O ₂ O ₂ air air	0.77 0.70 1.1 0.80 0.45 ^T 0.79 0.73 0.59 0.65* 0.57 0.63 0.57 0.70 0.77	PL/LI-56 CP/Oc-14 CP/Oc-14 PL/LI-56 PL/LI-56,42 PR/LI-60 PL/LI-56,38 PL/LI-56 PL/LI-56,42 PL/LI-56 PL/LI-56,42 PL/LI-56 MP/LI-56 MP/LI-56	S' = TPP; rel. to $\phi_{\Delta}(S') = 0.70$. A = H ₂ NCSNH ₂ . Assumed $f_T^A = 2$. A = Pregnolone. S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$. S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 532$ nm; used $\phi_T(S) = 0.66$. $P_T^{O_2} = 1$. S' = Np; TD = BP; rel. to $f_{\Delta}^T(S') = 0.55$. $P_T^{O_2} = 1$; cor. for energy transfer efficiency. S' = Pz; rel. to $f_{\Delta}^T(S') = 1.0$; $\lambda_{exc} = 532$ nm. $P_T^{O_2} = 1$. S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 532$ nm. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$. S' = Ac; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.66$; $\lambda_{exc} = 347$ nm. $f_{\Delta}^T = 0.86$ assuming $P_S^{O_2} = 0$; used $P_T^{O_2} = 1$. S' = Pz; rel. to $\phi_{\Delta}(S') = 0.83$; $\lambda_{exc} = 532$ nm. $P_T^{O_2} = 1$; assumed $f_T^{O_2} = 1$. S' = Ac; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 347$ nm; used $\phi_T(S) = 0.80$. $f_{\Delta}^T = 0.71$ assuming $P_S^{O_2} = 0$; used $P_T^{O_2} = 1$. S' = Ph a; rel. to $\phi_{\Delta}(S') = 0.8$. $P_T^{O_2} = 1$. S' = Chl a; rel. to $\phi_{\Delta}(S') = 0.55$. $P_T^{O_2} = 1$.	88F450 74E522 587002 90E615 90A328 90A328 90A328 90A328 87R185 90A328 90A328 87R185 86E061 82F161 80E714 79A010
2.167	Porphine-2,18-dipropanoic acid, 21,23-dideutero-7,12-diethenyl-3,8,13,17-tetramethyl-, dimethyl ester (PPDME-d ₂)	C ₆ H ₅ CH ₃	air ^a	0.80	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.	90E615
2.168	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, dimethyl ester, magnesium(II)	(C ₂ H ₅) ₂ O	air ^a	0.77	PL/LI-56	S' = TPP; rel. to $\phi_{\Delta}(S') = 0.70$.	88F450
2.169	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, dimethyl ester, zinc(II)	CCl ₄	air	0.65	MP/LI-56	S' = Ph a; rel. to $\phi_{\Delta}(S') = 0.8$.	82F161
2.170	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, magnesium(II) (MgPP)	D ₂ O D ₂ O (mic)	air ^a air ^a	≤0.02 0.56	PL/LI-56 PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.70$. Colloidal soln. contg. 0.5% NH ₄ OH. S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.70$. Soln. cont. 1% Triton X-100.	88F450 88F450
2.171	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, dimethyl ester, palladium(II) (PdPPDME)	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.95	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$; $\lambda_{exc} = 347$ nm.	87E667
2.172	Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, dichlorotin(IV)	D ₂ O (mic)	air ^a	0.33	PL/LI-56,42	S' = H ₂ TPPS ⁴⁻ ; meas. $\phi_T(S) = 0.68$; $\lambda_{exc} = 347$ nm. $f_{\Delta}^T = 0.48$ assuming $P_S^{O_2} = 0$; soln. cont. CTAB micelles.	86F541

Table 2. Quantum yields of photosensitized production of singlet oxygen, from porphyrins and related species.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.172 Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, dichlorotin(IV)—Continued							
	MeOD	O ₂	0.70*		PL/LI-56	S' = HP; rel. to Φ _Δ (S') = 0.53; λ _{exc} = 347 nm. Recalcd. using Φ _Δ (S') = 0.64 from [88Z155]; P _T ^{O₂} = 1.	88R194
2.173 Porphine-2,18-dipropanoic acid, 7,12-diethenyl-3,8,13,17-tetramethyl-, zinc(II) (ZnPP)							
	H ₂ O pH = 8.0	air	0.05		CP/Pa-43	S' = HP; A = 2,2,6,6-Tetramethyl-4-piperidone; P = 2,2,6,6-Tetramethyl-4-piperidone N-oxyl; rel. to Φ _Δ (S') = 0.4 ^b . P monitored by esr.	83N270
	H ₂ O pH = 8.0	air	0.04		CP/Pa-43	S' = HP; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.4 ^b . Tris-buffer, RNO as monitor of P.	83N270
2.174 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, di[4-(diphenylmethylaminocarbonyl-2-nitrophenylmethyl] ester							
	CH ₂ Cl ₂	air	0.22		PL/LI-56	S' = MPDME; rel. to Φ _Δ (S') = 0.65*; 0.57; λ _{exc} = 532 nm. P _T ^{O₂} = 1; rel. to S' in benzene.	91E134
	CH ₂ Cl ₂	O ₂	0.16		CP/Ac-43	S' = MPDME; A = BRH ₂ ; rel. to Φ _Δ (S') = 0.57.	89F267
2.175 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, di[4-(diphenylmethylaminocarbonylphenylmethyl] ester							
	CH ₂ Cl ₂	air	0.57		PL/LI-56	S' = MPDME; rel. to Φ _Δ (S') = 0.57; λ _{exc} = 532 nm. P _T ^{O₂} = 1; rel. to S' in benzene.	91E134
	CH ₂ Cl ₂	O ₂	0.54		CP/Ac-43	S' = MPDME; A = BRH ₂ ; rel. to Φ _Δ (S') = 0.57.	89F267
2.176 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, diethyl ester (MPDEE)							
	C ₅ H ₅ N	O ₂	0.70		CP/Oc-14	A = H ₂ NCSNH ₂ ; λ _{exc} = 430 nm. Assumed f _r ^A = 2.	737347 74E522
2.177 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester (MPDME)							
	C ₆ H ₅ CH ₃	air ^a	0.73		PL/LI-56,42	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543 87E667
	C ₆ D ₆	1.2% O ₂ in N ₂		0.88	PR/LI-60	S' = Np; TD = BP; rel. to f _Δ ^T (S') = 0.55. P _T ^{O₂} = 1; cor. for energy transfer efficiency.	91A358
	C ₆ D ₆	air ^a	0.61		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; meas. Φ _T (S) = 0.81; λ _{exc} = 347 nm. f _Δ ^T = 0.73 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185
	C ₆ H ₆	O ₂	0.65*		PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; λ _{exc} = 347 nm; used Φ _T (S) = 0.81. f _Δ ^T = 0.71 assuming P _S ^{O₂} = 0; used P _T ^{O₂} = 1.	87R185 86E061
	CCl ₄	air	0.90		MP/LI-56	S' = Ph a; rel. to Φ _Δ (S') = 0.8. P _T ^{O₂} = 1.	82F161
	CH ₃ CN	air ^a	0.61		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
2.178 Porphine-2,18-dipropanoic acid, 21,23-dideutero-7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester (MPDME-d₂)							
	C ₆ H ₅ CH ₃	air ^a	0.73		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm. P _T ^{O₂} = 1.	90E615
2.179 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, cadmium(II)							
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.76		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667
2.180 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, copper(II)							
	C ₆ H ₅ CH ₃	air ^a	~0.5		PL/LI-56	S' = PdOEP; rel. to Φ _Δ (S') = 1 ^b ; λ _{exc} = 347 nm.	91E392
	CCl ₄	air ^a			PL/LI-56	S' = GaTPP; meas. Φ _Δ (S)/Φ _Δ (S') = 0.62; λ _{exc} = 347 nm.	91E392
2.181 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, magnesium(II)							
	C ₆ H ₅ CH ₃	air ^a	0.56		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543 87E667
	CH ₃ CN	air ^a	0.56		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1; λ _{exc} = 347 nm.	87E543
2.182 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, mercury(II)							
	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.58		PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667
2.183 Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, palladium(II)							
	C ₆ H ₅ CH ₃	air ^a	1.0			Reference value justified in [74E522] and [78E893].	82E010

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.	
2.184	Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, oxovanadium(IV)	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.96	PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667	
2.185	Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, dimethyl ester, zinc(II)	C ₆ H ₅ CH ₃	1.8 × 10 ⁻³	0.82	PL/LI-56	S' = PdMPDME; rel. to Φ _Δ (S') = 1.0; λ _{exc} = 347 nm.	87E667	
2.186	Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, [4-(diphenylmethylaminocarbonyl-2-nitrophenylmethyl] methyl ester	CH ₂ Cl ₂	air	0.40	PL/LI-56	S' = MPDME; rel. to Φ _Δ (S') = 0.57; λ _{exc} = 532 nm. P _T ^{O₂} = 1; rel. to S' in benzene.	91E134	
2.187	Porphine-2,18-dipropanoic acid, 7,12-diethyl-3,8,13,17-tetramethyl-, mono[4-(diphenylmethylaminocarbonyl-2-nitrophenylmethyl] ester	CH ₂ Cl ₂	air	0.37	PL/LI-56	S' = MPDME; rel. to Φ _Δ (S') = 0.57; λ _{exc} = 532 nm. P _T ^{O₂} = 1; rel. to S' in benzene.	91E134	
2.188	Porphine-2,18-dipropanoic acid, 7,12-diformyl-1-3,8,13,17-tetramethyl-, dimethyl ester	CH ₂ Cl ₂	air ^a	0.68	CP/Ac-43	S' = PPDME; A = DPF; rel. to Φ _Δ (S') = 0.77; λ _{exc} = 405-408 nm.	82F333	
2.189	Porphine-2,18-dipropanoic acid, 7-[2-(dimethylamino)-2-oxoethyl]-8-ethyl-7,8-dihydro-3,7,12,17-tetramethyl, dimethyl ester, (Z)	CHCl ₃	air	0.62 ^T	0.9	CP/Ac-14,42	A = MDH; meas. Φ _T (S) = 0.69; λ _{exc} = 405, 660 nm. P _T ^{O₂} = 1. Used f _r ^A = 0.30, cor. for quenching of fluorescence of S.	90R006
		CHCl ₃	air	0.54 ^T	0.8	CP/LI-56,42	S' = TPP; rel. to Φ _Δ (S') = 0.50; meas. Φ _T (S) = 0.69; λ _{exc} = 405 nm. P _T ^{O₂} = 1. Same value in O ₂ , cor. for quenching of fluorescence of S and S'.	90R006
2.190	Porphine-2,18-dipropanoic acid, 7-[2-(dimethylamino)-2-oxoethyl]-8-ethylidene-7,8-dihydro-3,7,12,17-tetramethyl, dimethyl ester,	CCl ₄	air	0.58	CP/Ac-14	A = MDH. P _T ^{O₂} = 1; used f _r ^A = 0.30.	90R006	
		CHCl ₃	(1.2-9) × 10 ⁻³	0.95	CP/Ac-14,39	A = MDH; meas. Φ _T (S) = 0.57. P _T ^{O₂} = 1; used f _r ^A = 0.30; measured f _Δ ^T Φ _T = 0.54, f _Δ ^T f _T ^{O₂} = 0.87; cor. for quenching of fluorescence of S.	90R006	
		CHCl ₃	air	0.54 ^T	0.95	CP/LI-56,42	S' = TPP; rel. to Φ _Δ (S') = 0.50; meas. Φ _T (S) = 0.57; λ _{exc} = 405 nm. P _T ^{O₂} = 1. cor. for quenching of fluorescence of S and S'.	90R006
2.191	Porphine-2,18-dipropanoic acid, 7-[2-(dimethylamino)-2-oxoethyl]-8-heptyl-7,8-dihydro-3,7,12,17-tetramethyl, dimethyl ester, (Z)	CHCl ₃	air ^a	0.60	0.85	CP/LI-56,42	S' = TPP; rel. to Φ _Δ (S') = 0.5; meas. Φ _T (S) = 0.71; λ _{exc} = 405 nm. P _S ^{O₂} = 0.	91R253
2.192	Porphine-2,18-dipropanoic acid, 7-[2-(dimethylamino)-2-oxoethyl]-8-heptyl-7,8-dihydro-3,7,12,17-tetramethyl, dimethyl ester, tin(IV), (Z)	CHCl ₃	air ^a	0.62	0.65	CP/LI-56,42	S' = TPP; rel. to Φ _Δ (S') = 0.5; meas. Φ _T (S) = 0.95; λ _{exc} = 405 nm. P _S ^{O₂} = 0.	91R253
2.193	Porphine-2,18-dipropanoic acid, 7-[2-(dimethylamino)-2-oxoethyl]-8-heptyl-7,8-dihydro-3,7,12,17-tetramethyl, dimethyl ester, zinc(II), (Z)	CHCl ₃	air ^a	0.61	0.69	CP/LI-56,42	S' = TPP; rel. to Φ _Δ (S') = 0.5; meas. Φ _T (S) = 0.88; λ _{exc} = 405 nm. P _S ^{O₂} = 0.	91R253
2.194	Porphine-2,18-dipropanoic acid, 7(12)-ethenyl-12(7)-formyl, dimethyl ester	CH ₂ Cl ₂	air ^a	0.71	CP/Ac-43	S' = PPDME; A = DPF; rel. to Φ _Δ (S') = 0.77; λ _{exc} = 405-408 nm.	82F333	
2.195	Porphine-2,18-dipropanoic acid, 7-ethenyl-12-(1-hydroxyethyl)-3,8,13,17-tetramethyl-	EtOD	air	0.45	0.65	PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.53; meas. Φ _T (S) = 0.69; λ _{exc} = 347 nm. P _S ^{O₂} = 0.	87E054
		D ₂ O	O ₂	0.2		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.4 ^b ; meas. Φ _T (S) = 0.34; λ _{exc} = 355 nm. Calculated f _Δ ^T (S)f _Δ ^T (S') = 1.19.	86E061
		D ₂ O (mic)	O ₂	0.6		PL/LI-56,42	S' = HP; rel. to Φ _Δ (S') = 0.4 ^b ; meas. Φ _T (S) = 0.63; λ _{exc} = 355 nm. Calculated f _Δ ^T (S)f _Δ ^T (S') = 2.25; soln. cont. 0.01 mol L ⁻¹ CTAB.	86E061
2.196	Porphine-2,18-dipropanoic acid, 12(7)-ethenyl-8(13)-hydroxy-3,8,13,17-tetramethyl-7(12)-(oxoethylidene)-, dimethyl ester	C ₆ H ₆	O ₂	0.56*	PL/LI-56,42	S' = Ac; rel. to Φ _Δ (S') = 0.73; λ _{exc} = 355 nm; used Φ _T (S) = 0.66. f _Δ ^T = 0.74 assuming P _S ^{O₂} = 0.	86E061	
		CH ₂ Cl ₂	air ^a	0.49		CP/Ac-43	S' = PPDME; A = DPF; rel. to Φ _Δ (S') = 0.77; λ _{exc} = 405-408 nm.	82F333

Table 2. Quantum yields of photosensitized production of singlet oxygen, porphyrins.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.
2.197 Porphine-2,18-dipropanoic acid, 3,7,12,17-tetramethyl- (Deuteroporphyrin, DP)							
	H ₂ O pH = 7.0	O ₂	0.51	CP/Pa-43	S' = RB; A = His; rel. to $\phi_{\Delta}(S') = 0.75$. RNO as monitor of P.		89F580
	H ₂ O pH = 8.0	air	0.22	CP/Pa-43	S' = HP; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.4^b$. Tris-buffer, RNO as monitor of P.		83N270
	H ₂ O pH = 8.0	air	0.23	CP/Pa-43	S' = HP; A = 2,2,6,6-Tetramethyl-4-piperidone; P = 2,2,6,6-Tetramethyl-4-piperidone N-oxyl; rel. to $\phi_{\Delta}(S') = 0.4^b$. P monitored by esr.		83N270
2.198 Porphine-2,18-dipropanoic acid, 3,7,12,17-tetramethyl-, dimethyl ester (DPDME)							
	C ₆ H ₅ CH ₃	air ^a	0.53	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1.0$.		89A504
	C ₆ D ₆	1.2% O ₂ in N ₂	0.75	PR/LI-60	S' = Np; TD = BP; rel. to $f_{\Delta}^T(S') = 0.55$. $P_T^{O_2} = 1$; cor. for energy transfer efficiency.		91A358
	C ₆ H ₆	O ₂	0.64*	PL/LI-56,42	S' = Ac; rel. to $\phi_{\Delta}(S') = 0.73$; meas. $\phi_T(S) = 0.72$; $\lambda_{exc} = 355$ nm. $f_{\Delta}^T = 0.78$ assuming $P_S^{O_2} = 0$.		86E061
			0.56				
2.199 Porphine-2,18-dipropanoic acid, 21,23-dideutero-3,7,12,17-tetramethyl-, dimethyl ester (DPDME-d₂)							
	C ₆ H ₅ CH ₃	air ^a	0.58	PL/LI-56	S' = PdMPDME; rel. to $\phi_{\Delta}(S') = 1$; $\lambda_{exc} = 347$ nm. $P_T^{O_2} = 1$.		90E615
2.200 Porphine-2-propanoic acid, 18-carboxy-20-(carboxymethyl)-8-ethenyl-13-ethyl-2,3-dihydro-3,7,12,17-tetramethyl- (Chlorin a₆)							
	C ₅ H ₅ N	air ^a	0.74	PL/LI-56	S' = TPP; rel. to $\phi_{\Delta}(S') = 0.74$; meas. $\phi_T(S) = 0.81$; $\lambda_{exc} = 347$ nm.		89E505
	D ₂ O pD = 8.1	air ^a	0.75	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.7$; meas. $\phi_T(S) = 0.82$; $\lambda_{exc} = 347$ nm. Complex with HSA.		89E505
	D ₂ O pD = 8.1	air ^a	0.76	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.7$; meas. $\phi_T(S) = 0.80$; $\lambda_{exc} = 347$ nm.		89E505
	D ₂ O (mic) pD = 8.1	air ^a	0.70	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to $\phi_{\Delta}(S') = 0.7$; meas. $\phi_T(S) = 0.80$; $\lambda_{exc} = 347$ nm. Soln. cont. 10 ⁻³ mol L ⁻¹ Triton X-100.		89E505
2.201 5-Porphinepropenoic acid, octaethyl-, ethyl ester							
	MeOH	air	0.08	PL/LI-56,42	S' = HP; rel. to $\phi_{\Delta}(S') = 0.64$; meas. $\phi_T(S) = 0.08$. $f_{\Delta}^T = \sim 1$ assuming $P_S^{O_2} = 0$; $P_T^{O_2} = 1$; secondary $\phi_{\Delta}(S') = 0.41$, S' = ZnPCS.		90E491
2.202 Porphine-2-propionamide, N-[4-[(7-chloro-4-quinolyl)amino]butyl]-5,10,15,20-tetraphenyl-							
	H ₂ O (mic)	air		CP/Ac-43	S' = HP; A = His; meas. $\phi_{\Delta}(S)/\phi_{\Delta}(S') = 0.65$; $\lambda_{exc} = 405$ nm. Tris buffer, 1% Triton X-100.		90F450
2.203 Porphine-2,7,12,17-tetrapropanoic acid, 3,8,13,18-tetrakis(carboxymethyl)- (Uroporphyrin I)							
	H ₂ O pH = 7.4	air ^a	0.56	PL/LI,St-55,42	S' = HP; rel. to $f_{\Delta}^T(S') = 0.51$; mcas. $\phi_T(S) = 0.93$; $\lambda_{exc} = 532$ nm; used $\epsilon_T(S) = 19000$ L mol ⁻¹ cm ⁻¹ at 440 nm. $\Delta\epsilon_T(S) = 19,000$ L mol ⁻¹ cm ⁻¹ at 440 nm; $\phi_{\Delta} = 0.52$ assuming $P_S^{O_2} = 0$; $P_T^{O_2} = 1$.		86A407
	H ₂ O pH = 7.4	O ₂	0.71	CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 546$ nm. RNO as monitor of P.		85R008
	H ₂ O pH = 8.0	air	0.80	CP/Pa-43	S' = HP; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.4^b$. Tris-buffer, RNO as monitor of P.		83N270
	H ₂ O pH = 8.0	air	0.62	CP/Pa-43	S' = HP; A = 2,2,6,6-Tetramethyl-4-piperidone; P = 2,2,6,6-Tetramethyl-4-piperidone N-oxyl; rel. to $\phi_{\Delta}(S') = 0.4^b$. P monitored by esr.		83N270
	H ₂ O (mic) pH = 7.4	O ₂	0.92	CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to $\phi_{\Delta}(S') = 0.75$; $\lambda_{exc} = 546$ nm. Soln. cont. 0.23 mg/mL egg phosphatidylcholine; RNO as monitor of P.		85R008
2.204 Porphine-2,7,12,17-tetrapropanoic acid, 3,8,13,18-tetramethyl- (Coproporphyrin I)							
	H ₂ O pH = 7.0	O ₂	0.60	CP/Pa-43	S' = RB; A = His; rel. to $\phi_{\Delta}(S') = 0.75$. RNO as monitor of P.		89F580
2.205 Porphine-2,7,12,18-tetrapropanoic acid, 3,8,13,17-tetramethyl- (Coproporphyrin III)							
	H ₂ O pH = 7.4	air ^a	0.46	PL/LI,St-55,42	S' = HP; rel. to $f_{\Delta}^T(S') = 0.51$; meas. $\phi_T(S) = 0.61$; $\lambda_{exc} = 532$ nm. $\Delta\epsilon_T(S) = 6500$ L mol ⁻¹ cm ⁻¹ at 440 nm; $\phi_{\Delta} = 0.28$ assuming $P_S^{O_2} = 0$; $P_T^{O_2} = 1$.		86A407

Table 2. Quantum yields of photosensitized production of singlet oxygen, from porphyrins and related species.—Continued

No.	Solvent	[O ₂]	Φ _Δ	f _Δ ^T	Method	Comment	Ref.
2.205	Porphine-2,7,12,18-tetrapropionic acid, 3,8,13,17-tetramethyl- (Coproporphyrin III)—Continued						
	H ₂ O (mic)	air ^a	0.71	PL/LI-St-55,42	S' = HP; rel. to f _Δ ^T (S') = 0.67; meas. Φ _T (S) = 0.81; λ _{exc} = 532 nm. Δε _T (S) = 12,200 L mol ⁻¹ cm ⁻¹ at 440 nm; Φ _Δ = 0.58 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1; Soln. cont. 2% Triton X-100.	86A407	
2.206	Porphine-2,7,12,18-tetrapropionic acid, 3,8,13,17-tetramethyl-, tetramethyl ester	C ₆ D ₆	1.2% O ₂ in N ₂	0.74	PR/LI-60	S' = Np; TD = BP; rel. to f _Δ ^T (S') = 0.55. P _T ^{O₂} = 1; cor. for energy transfer efficiency.	91A358
2.207	Porphine-2,7,18-tripropionic acid, 13,13'-(1,6-hexanediyil)bis[3,8,12,17-tetramethyl-	D ₂ O (mic)	O ₂	0.18	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; λ _{exc} = 355 nm. Soln. cont. 10 ⁻² mol L ⁻¹ CTAB.	88R204
2.208	Porphine-2,7,18-tripropionic acid, 13,13'-(1,3-propanediyil)bis[3,8,12,17-tetramethyl-	D ₂ O (mic)	O ₂	0.18	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; λ _{exc} = 355 nm. Soln. cont. 10 ⁻² mol L ⁻¹ CTAB.	88R204
2.209	Porphine-2,7,18-tripropionic acid, 13,13'-(1,11-undecanediyil)bis[3,8,12,17-tetramethyl-	D ₂ O (mic)	O ₂	0.18	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; λ _{exc} = 355 nm. Soln. cont. 10 ⁻² mol L ⁻¹ CTAB.	88R204
2.210	[26] Porphyrin	CHCl ₃	air	0.14 ^T	PL/LI-56,42	S' = TPP; rel. to Φ _Δ (S') = 0.50; meas. Φ _T (S) = 0.15; λ _{exc} = 546 nm. f _Δ ^T = -1 assuming P _S ^{O₂} = 0; P _T ^{O₂} = 1.	90E530
2.211	Porphycene	C ₆ H ₅ CH ₃	air	0.30	PL/LI-56,42	S' = An; rel. to Φ _Δ (S') = 0.61; meas. Φ _T (S) = 0.42; λ _{exc} = 347 and 354 nm. Assumed P _S ^{O₂} = 0 and P _T ^{O₂} = 1 to give f _Δ ^T = 0.7.	86E633
	C ₆ H ₆	O ₂	0.34	PL/LI-56	S' = ZnTPP; rel. to Φ _Δ (S') = 0.73; λ _{exc} = 600 nm. P _T ^{O₂} = 1.	90E374	
	C ₆ H ₆	O ₂	0.34	PL/LI-56,42	S' = An; rel. to Φ _Δ (S') = 0.68; meas. Φ _T (S) = 0.3; λ _{exc} = 354 nm. Assumed P _S ^{O₂} = 0 and P _T ^{O₂} = 1 to give f _Δ ^T = 1.	90E374	
	D ₂ O (ves) pD = 7.4	O ₂	0.17- 0.37	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.72; λ _{exc} = 600 nm. [DPPC] = 6.7 × 10 ⁻⁴ mol L ⁻¹ , S' in D ₂ O-Tris buffer; concn. dependent.	90N126	
	EtOH	air	0.30	PL/LI-56	S' = An; rel. to Φ _Δ (S') = 0.61; λ _{exc} = 347 and 354 nm. Also relative to Φ _Δ = 0.73 for ZnTPP.	86E633	
2.212	Porphycene, 2,7,12,17-tetrapropyl-	C ₆ H ₅ CH ₃	air	0.35	PL/LI-56	S' = An; rel. to Φ _Δ (S') = 0.61; λ _{exc} = 347 and 354 nm. Also relative to Φ _Δ = 0.73 for ZnTPP; some singlet quenching.	86E633
	C ₆ H ₆	O ₂	0.36	PL/LI-56	S' = ZnTPP; rel. to Φ _Δ (S') = 0.73; λ _{exc} = 600 nm.	90E374	
	C ₆ H ₆	O ₂	0.36	PL/LI-56,42	S' = An; rel. to Φ _Δ (S') = 0.68; meas. Φ _T (S) = 0.4; λ _{exc} = 354 nm. Measured P _S ^{O₂} = 0 and P _T ^{O₂} = 1 to give f _Δ ^T = 1.	90E374	
	D ₂ O (ves) pD = 7.4	O ₂	0.22- 0.37	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.72; λ _{exc} = 553 nm. [DPPC] = 6.7 × 10 ⁻⁴ mol L ⁻¹ , S' in D ₂ O-Tris buffer; concn. dependent.	90N126	
2.213	Sapphyrin, 3,8,12,13,17,22-hexaethyl-2,7,18,23-tetramethyl-, diprotonated	CD ₂ Cl ₂	O ₂	0.28	PL/LI-56,41	S' = RBEE; rel. to Φ _Δ (S') = 0.61; λ _{exc} = 355, 532 nm. f _Δ ^T = -0.5 assuming P _S ^{O₂} = 0; SAP ²⁺ exists as monomer in CHCl ₃ where Φ _T (S) = 0.54.	90E194
	CD ₃ CN	O ₂	0.19	PL/LI-56	S' = BP; rel. to Φ _Δ (S') = 0.37; λ _{exc} = 355 nm. SAP ²⁺ exists as mixt. of monomer and dimer in this solvent; at high concn. of SAP ²⁺ (1 × 10 ⁻⁴ mol L ⁻¹), Φ _Δ = 0.17.	90E194	
	CD ₃ OD	air	0.13	PL/LI-56	S' = T(m-HOP)P; rel. to Φ _Δ (S') = 0.57; λ _{exc} = 355, 532 nm. SAP ²⁺ exists as mixt. of monomer and dimer in this solvent.	90E194	
2.214	Tetrabenzoporphine, zinc(II)	C ₅ H ₄ N/diox (1:1)	O ₂	0.7	PL/LI-56	S' = HP; rel. to Φ _Δ (S') = 0.6 ^b ; λ _{exc} = 633 nm.	91F205

Table 2. Quantum yields of photosensitized production of singlet oxygen, from porphyrins and related species.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	f_{Δ}^T	Method	Comment	Ref.	
2.215	Tetrabenz[b,g,l,q]porphine, 6,13-diphenyl-, cadmium(II)	diox	O ₂	0.5	PL/LI-56	$S' = HP$; rel. to $\phi_{\Delta}(S') = 0.6^b$; $\lambda_{exc} = 633$ nm.	91F205	
2.216	Tetrabenz[b,g,l,q]porphine, 6,13-diphenyl-, magnesium(II)	diox	O ₂	0.4	PL/LI-56	$S' = HP$; rel. to $\phi_{\Delta}(S') = 0.6^b$; $\lambda_{exc} = 633$ nm.	91F205	
2.217	Tetrabenz[b,g,l,q]porphine, 6,13-diphenyl-, zinc(II)	C ₆ H ₅ N/diox (1:1)	O ₂	0.6	PL/LI-56	$S' = HP$; rel. to $\phi_{\Delta}(S') = 0.6^b$; $\lambda_{exc} = 633$ nm.	91F205	
		diox	O ₂	0.6	PL/LI-56	$S' = HP$; rel. to $\phi_{\Delta}(S') = 0.6^b$; $\lambda_{exc} = 633$ nm.	91F205	
2.218	Tetrabenz[b,g,l,q]porphine, 6,13,20-triphenyl-, zinc(II)	diox	O ₂	0.7	PL/LI-56	$S' = HP$; rel. to $\phi_{\Delta}(S') = 0.6^b$; $\lambda_{exc} = 633$ nm.	91F205	
2.219	Cadmium(II) chlorotexaphyrin nitrate	MeOH	air	0.74	0.76	PL/LI-56,42	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; meas. $\phi_T(S) = 0.97$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.220	Cadmium(II) texaphyrin nitrate	MeOH	air	0.69	0.78	PL/LI-56,42	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; meas. $\phi_T(S) = 0.88$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.221	Europium(III) dimethyltexaphyrin dihydroxide	MeOH	air	<0.05		PL/LI-56	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.222	Manganese(II) texaphyrin, hydroxide	MeOH	air	<0.05		PL/LI-56	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.223	Samarium(II) dimethyltexaphyrin dihydroxide	MeOH	air	<0.05		PL/LI-56	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.224	Zinc(II) chlorotexaphyrin chloride	MeOH	air	0.65	0.73	PL/LI-56,42	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; meas. $\phi_T(S) = 0.88$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.225	Zinc(II) texaphyrin chloride	MeOH	air	0.61	0.74	PL/LI-56,42	$S' = T(p-HOP)P$; rel. to $\phi_{\Delta}(S') = 0.56$; meas. $\phi_T(S) = 0.82$; $\lambda_{exc} = 355$ nm. $P_T^{O_2} = 1$, used $P_S^{O_2} = 0$.	89A356
2.226	Zinc methyl pyoverdin	C ₆ H ₆	air ^a	0.17		PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 355$ nm.	91R193
2.227	Mesoverdin methyl ester	C ₆ H ₆	air ^a	0.10		PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 355$ nm.	91R193
2.228	Deuteroverdin methyl ester	C ₆ H ₆	air ^a	0.18		PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 355$ nm.	91R193
2.229	Coproverdin II trimethyl ester	C ₆ H ₆	air ^a	0.14		PL/LI-56	$S' = Ac$; rel. to $\phi_{\Delta}(S') = 0.84$; $\lambda_{exc} = 355$ nm.	91R193

^a Oxygen concentration not given; assumed to be air saturated.^b Value of $\phi_{\Delta}(S')$ used in this work to calculate $\phi_{\Delta}(S)$ from authors' reported $\phi_{\Delta}(S)/\phi_{\Delta}(S')$.^T Value corrected for 100% quenching of T₁.* Values recalculated using $\phi_{\Delta}(S')$ or $f_{\Delta}^T(S')$ from Table 4 or from the quoted reference.

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.

No.	Solvent	[O ₂]	φ _Δ	Method	Comment	Ref.
3.1	Anthra[9,1,2-cde]benzo[rsf]pentaphene-5,10-dione (Dibenzanthrone)					
	CDCl ₃	air	0.03	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85E863
3.2	Anthra[9,1,2-cde]benzo[rsf]pentaphene-5,10-dione, dibromo-16,17-dimethoxy-					
	CDCl ₃	air	<0.02	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85E863
3.3	Anthra[9,1,2-cde]benzo[rsf]pentaphene-5,10-dione, 16,17-dinitro-					
	CDCl ₃	air	<0.02	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85E863
3.4	Anthra[9,1,2-cde]benzo[rsf]pentaphene-10,18-dione, 6,15-dichloro-					
	CCl ₄	air	0.2	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85E863
	CDCl ₃	air	0.085	MP/LI-56	S' = TPP; rel. to φ _Δ (S') = 0.7.	85E863
3.5	Anthra[2,1-d:6,5-d']bisthiazole-6,12-dione, 1,8-diphenyl-					
	EtOH/C ₆ H ₆	O ₂	0.51	CP/Oc-27	A = Furan; λ _{exc} = 365 nm.	73F677
3.6	2-Anthracesulfonic acid, 1-amino-9,10-dihydro-9,10-dioxo-4-[3-[(2-(sulfoxy)ethyl)sulfonyl]phenyl]amino]-, disodium salt					
	2-PrOH/ H ₂ O (10:1)	air	0.017	CP/Ac-45	S' = RB; A = DMA; rel. to φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.7	Benzenesulfonic acid, 2-[(4-amino-3-bromo-9,10-dihydro-9,10-dioxo-1-anthracenyl)amino]-5-methyl-, monosodium salt					
	2-PrOH/ H ₂ O (10:1)	air	0.015	CP/Ac-45	S' = RB; A = DMA; rel. to φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.8	Benzenesulfonic acid, 4-[(4-amino-9,10-dihydro-9,10-dioxo-1-anthracenyl)amino]phenyl]amino]-6-(2-chloro-1,3,5-triazin-4-yl)amino					
	2-PrOH/ H ₂ O (10:1)	air	0.014	CP/Ac-45	S' = RB; A = DMA; rel. to φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.9	Benzenesulfonic acid, 4-[(2-methoxy-5-(2-sulfatoethyl)sulfonylphenyl]azo-3-[2-hydroxy-5-methyl-imidaz-1-yl]-, disodium salt					
	2-PrOH/ H ₂ O (10:1)	air	>0.1	CP/Ac-45	S' = RB; A = DMA; rel. to φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.10	Benzimidazo[2,10a]benz[de]isoquinolin-7-one, 4-benzoyl-					
	CHCl ₃	air ^a	0.55	PL/LI-56	S' = MPDEE; rel. to φ _Δ (S') = 0.77. P _T ^{O₂} = 1.	82F631
	EtOH	air ^a	0.56	CP/Oc-43	S' = MPDEE; A = H ₂ NCSNH ₂ ; rel. to φ _Δ (S') = 0.77. Assumed P _T ^{O₂} = 1, P _{S'} ^{O₂} = 0.	82F631
3.11	Benzo[d]naphtho[1,2-b]pyran-6-one, 4-(6-deoxy-α-galactofuranosyl)-1-hydroxy-10,12-dimethoxy-8-methyl- (Gilvocarcin V)					
	DMSO	air	0.15	CP/Pa-43	S' = RB; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethyl-piperidine N-oxyl; rel. to φ _Δ (S') = 0.76; λ _{exc} = 405 nm.	89D112
3.12	Benzo[a]phenothiazinium, 5-amino-9-diethylamino-					
	MeOH	air ^a	0.024	CP/Ac-45	S' = RB; A = DPBF; rel. to φ _Δ (S') = 0.76; λ _{exc} = 630 nm. Soln. cont. 0.04% acetic acid.	87R190
3.13	Benzo[a]phenothiazinium, 5-amino-9-diethylamino-6-iodo-					
	MeOH	air ^a	0.28	CP/Ac-45	S' = RB; A = DPBF; rel. to φ _Δ (S') = 0.76. Acidic soln.; data from Cincotta (unpubl.).	90E288
	MeOH	air ^a	0.17	CP/Ac-45	S' = RB; A = DPBF; rel. to φ _Δ (S') = 0.76; λ _{exc} = 630 nm. Soln. cont. 0.04% acetic acid.	87R190
3.14	Benzo[a]phenothiazinium, 5-benzylamino-9-diethylamino-					
	MeOH	air ^a	0.021	CP/Ac-45	S' = RB; A = DPBF; rel. to φ _Δ (S') = 0.76; λ _{exc} = 630 nm. Soln. cont. 0.04% acetic acid.	87R190
3.15	Benzo[a]phenoxazinium, 5-amino-6-bromo-9-diethylamino-					
	MeOH	air ^a	0.007	CP/Ac-45	S' = RB; A = DPBF; rel. to φ _Δ (S') = 0.76; λ _{exc} = 630 nm. Soln. cont. 0.04% acetic acid.	87R190
3.16	Benzo[a]phenoxazinium, 5-amino-6,8-dibromo-9-ethylamino-					
	MeOH	air ^a	0.082	CP/Ac-45	S' = RB; A = DPBF; rel. to φ _Δ (S') = 0.76; λ _{exc} = 630 nm. Soln. cont. 0.04% acetic acid.	87R190

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Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	Method	Comment	Ref.
3.17	Benzo[<i>a</i>]phenoxazinium, 5-amino-9-diethylamino-					
	MeOH	air ^a	0.005	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 630$ nm. Soln. cont. 0.04% acetic acid.	87R190
3.18	Benzo[<i>a</i>]phenoxazinium, 5-amino-9-diethylamino-2,6-diiodo-					
	MeOH	air ^a	0.034	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 630$ nm. Soln. cont. 0.04% acetic acid.	87R190
3.19	Benzo[<i>a</i>]phenoxazinium, 5-amino-9-ethylamino-6,8-diiodo-					
	MeOH	air ^a	0.50	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 630$ nm. Soln. cont. 0.04% acetic acid.	87R190
3.20	Benzo[<i>a</i>]phenoxazinium, 5-amino-9-diethylamino-2-iodo-					
	MeOH	air ^a	0.008	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 630$ nm. Soln. cont. 0.04% acetic acid.	87R190
3.21	Benzo[<i>a</i>]phenoxazinium, 5-amino-9-diethylamino-6-iodo-					
	MeOH	air ^a	0.06	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$. Acidic soln.; data from Cincotta (unpubl.).	90E288
	MeOH	air ^a	0.036	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 630$ nm. Soln. cont. 0.04% acetic acid.	87R190
3.22	Benzo[<i>a</i>]phenoxazinium, 5-benzylamino-9-diethylamino-					
	MeOH	air ^a	0.005	CP/Ac-45	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 630$ nm. Soln. cont. 0.04% acetic acid.	87R190
3.23	1,2-Benzothiazine-3-carboxamide, 4-hydroxy-2-methyl- <i>N</i> -(2-pyridyl)- 1,1-dioxide (Piroxicam)					
	C ₆ H ₆	air	<0.02	PL/LI-56	S' = BP; rel. to $\phi_{\Delta}(S') = 0.29$; $\lambda_{exc} = 308$ nm. No emission detected.	91F273
	C ₆ H ₆	air ^a	≤0.01	PL/LI-56	S' = Ac; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 355$ nm.	87R130
	D ₂ O pH = -7	air ^a	≤0.002	PL/LI-56	S' = H ₂ TMpyP ⁴⁺ ; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 265, 355$ nm.	87R130
3.24	1,2-Benzothiazin-4-one, 2,3-dihydro-2-methyl-, 1,1-dioxide					
	C ₆ H ₆	air ^a	0.40*	PL/LI-56	S' = Ac; rel. to $\phi_{\Delta}(S') = 0.73$; $\lambda_{exc} = 355$ nm.	87R130
			0.35			
	D ₂ O pH = -7	air ^a	0.20	PL/LI-56	S' = H ₂ TMpyP ⁴⁺ ; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 265$ nm.	87R130
	D ₂ O pH = -7	air ^a	0.18	PL/LI-56	S' = H ₂ TMpyP ⁴⁺ ; rel. to $\phi_{\Delta}(S') = 0.74$; $\lambda_{exc} = 355$ nm.	87R130
3.25	Benzothiazolium, 5-chloro-2-[2-[3-[(5-chloro-3-ethyl-2-benzothiazolidenc)ethylidene]-2-(diphenylamino)-1-cyclopenten-1-yl]ethenyl]-3-ethyl-perchlorate					
	Propylene carbonate	O ₂	0.014	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.26	Benzothiazolium, 6-chloro-3-methyl-2-[7-(1,3,3-trimethyl-2-indolylidene)-1-(4-iodo-1,3,5-heptatrienyl)-, tetrafluoroborate					
	Propylene carbonate	O ₂	0.017	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.27	Benzothiazolium, 3,6-dimethyl-2-[7-(1,3,3-trimethyl-2-indolylidene)-1-(4-iodo-1,3,5-heptatrienyl)-, tetrafluoroborate					
	Propylene carbonate	O ₂	0.012	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.28	Benzothiazolium, 6-fluoro-3-methyl-2-[7-(1,3,3-trimethyl-2-indolylidene)-1-(4-iodo-1,3,5-heptatrienyl)-, tetrafluoroborate					
	Propylene carbonate	O ₂	0.012	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.29	Benzothiazolium, 6-methoxy-3-methyl-2-[7-(1,3,3-trimethyl-2-indolylidene)-1-(4-iodo-1,3,5-heptatrienyl)-, tetrafluoroborate					
	Propylene carbonate	O ₂	0.006	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.30	Benzothiazolium, 3-methyl-2-[7-(1,3,3-trimethyl-2-indolylidene)-1,3,5-heptatrienyl]-, iodide					
	Propylene carbonate	O ₂	0.017	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.31 5-Benzoxazoleacetic acid, 2-(4-chlorophenyl)-α-methyl- (Benoxyprofen)						
	H ₂ O pH = 8.0	air	0.18	CP/Oc-14	A = His'. Assumed Φ _{ox} = Φ _Δ in the presence of 0.1 mol L ⁻¹ His, but measured Φ _T = 0.19 was reduced by 2.6 in the presence of His. Thus 2.6 × Φ _{ox} = Φ _Δ in the absence of His.	85E163
3.32 3-Benzoxazolepropanesulfonic acid, 2-[4-(1,3-dibutyltetrahydro-4,6-dioxo-2-thioxo-5-pyrimidinylidene)-2-butenyldene]-, sodium salt (Merocyanine 540)						
	H ₂ O (ves)	O ₂	0.015-0.05	CP/Ac-43	A = DMA; λ _{exc} = 376 nm. rel. to Φ _Δ (MC540) in EtOH = 0.007; DMPC liposomes	91R140
	H ₂ O (ves)	O ₂	0.035-0.05	CP/Ac-43	S' = RB; A = ADPA; rel. to Φ _Δ (S') = 0.75; λ _{exc} = 376 nm. DMPC liposomes; rel. to S' in H ₂ O; at 38°C Φ _Δ increases by factor of 1.3	91R140
	D ₂ O/MeOD (1:1)	air ^a	0.02	PL/LI-56	S' = Ery; rel. to Φ _Δ (S') = 0.60.	91A208
	H ₂ O/EtOH (94:6)	O ₂	0.003	CP/Oc-43	S' = RB; A = His; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 568 nm. λ _{exc} = 550 for RB.	91R063
	EtOH	air	0.007	CP/Ac-45	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.86.	88F151
	MeOH	air	0.004	CP/Ac-45	S' = RB; A = DPBF; rel. to Φ _Δ (S') = 0.86. Rel. to S' in ethanol.	88F151
	CD ₃ OD	O ₂	0.03	PL/LI-56	S' = T(m-HOP)P; rel. to Φ _Δ (S') = 0.57; λ _{exc} = 532 nm. P _T ^O = 1.	91R017
3.33 Biline-8,12-dipropionic acid, 18-ethenyl-3-ethylidene-1,2,3,15,16,19,22,24-octahydro-2,7,13,17-tetramethyl-1,19-dioxo-, dimethyl ester						
	C ₆ H ₅ CH ₃	air	0.0008	CP/Ac-14	A = DPBF; λ _{exc} = 597 nm.	91R184
3.34 (2,2'-Bipyridine)bis(bromo)platinum(II)						
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.05. Obs. P by esr.	88A276
3.35 (2,2'-Bipyridine)bis(chloro)platinum(II)						
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.19. Obs. P by esr.	88A276
3.36 (2,2'-Bipyridine)bis(cyano)platinum(II)						
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.31. Obs. P by esr.	88A276
3.37 (2,2'-Bipyridine)bis(iodo)platinum(II)						
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OI; P = 4-IHydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.02. Obs. P by esr.	88A276
3.38 (2,2'-Bipyridine)bis(thiocyanato)platinum(II)						
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.16. Obs. P by esr.	88A276
3.39 2,2'-Bipyridine(2,3-naphthalenediolato)palladium(II)						
	DMF	O ₂		CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dhn); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.04. Obs. P by esr.	91F203
3.40 2,2'-Bipyridine(2,3-naphthalenediolato)platinum(II)						
	DMF	O ₂		CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dhn); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.15. Obs. P by esr	91F203
3.41 2,2'-Biquinoline(2,3-naphthalenediolato)palladium(II)						
	DMF	O ₂		CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dhn); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.05. Obs. P by esr	91F203

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Table 3, Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.42	2,2'-Biquinoline(2,3-naphthalenediolato)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dln); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.07. Obs. P by esr	91F203
3.43	Bis(azido)(2,2'-biquinoline)palladium(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.04. Obs. P by esr.	90F196
3.44	Bis(azido)(2,2'-biquinoline)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.05. Obs. P by esr.	90F196
3.45	Bis(azido)(2,2'-bipyridine)palladium(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.18. Obs. P by esr.	90F196
3.46	Bis(azido)(4,7-diphenyl-1,10-phenanthroline)palladium(II) Pd(4,7-Ph ₂ phen)(N ₃) ₂					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.34. Obs. P by esr.	90F196
3.47	Bis(azido)(4,7-diphenyl-1,10-phenanthroline)platinum(II) Pt(4,7-Ph ₂ phen)(N ₃) ₂					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.76. Obs. P by esr.	90F196
3.48	Bis(azido)(1,10-phenanthroline)palladium(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.17. Obs. P by esr.	90F196
3.49	Bis(azido)(1,10-phenanthroline)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(bpy)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.82. Obs. P by esr.	90F196
3.50	4- <i>tert</i> -Butylcatechol(1,10-phenanthroline)palladium(II) Pd(phen)(BCAT)					
	DMF	O ₂	-0.18	CP/Pa-43	S' = Pt(phen)(BCAT); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; rel. to Φ _Δ (S') = -0.15 ^b . Obs. P by esr.	89F181
3.51	4- <i>tert</i> -Butylcatechol(1,10-phenanthroline)platinum(II) Pt(phen)(BCAT)					
	DMF	O ₂	-0.15	CP/Pa-43	S' = HP; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; rel. to Φ _Δ (S') = 0.6 ^b . Obs. P by esr.	89F181
3.52	4,4'-Carbocyanine, 1,1'-diethyl- (Kryptocyanine)					
	D ₂ O (mic) pH = -7	O ₂	<0.03	PL/LI-56	S' = T(m-HOP)P; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 355, 532 nm. Triton X-100; same results for HSA-bound dye.	90R164
	H ₂ O (cells)	O ₂	<0.05	PL/LI-56	S' = T(m-HOP)P; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 355, 532 nm.	90R164
	MeOD	O ₂	<0.02	PL/LI-56	S' = T(m-HOP)P; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 355, 532 nm. P _S ^{O₂} = 0, P _T ^{O₂} = 1.	90R164
3.53	Catechol(1,10-phenanthroline)palladium(II) Pd(phen)(CAT)					
	DMF	O ₂	-0.09	CP/Pa-43	S' = Pt(phen)(BCAT); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; rel. to Φ _Δ (S') = -0.15 ^b . Obs. P by esr.	89F181

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.54	Catechol(1,10-phenanthroline)platinum(II) Pt(phen)(CAT)					
	DMF	O ₂	~0.07	CP/Pa-43	S' = Pt(phen)(BCAT); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; rel. to Φ _Δ (S') = ~0.15 ^b . Obs. P by esr.	89F181
3.55	Cobrynic acid, bis(cyano)-7-de(carboxymethyl)-7,8-didehydro-, hexamethyl ester					
	C ₆ D ₆	O ₂	0.13	CP/Ac-14	A = DMA; λ _{exc} = 710 nm.	83F222
	C ₆ H ₆	O ₂	0.13	CP/Ac-14	A = DMA; λ _{exc} = 710 nm.	83F222
	CDCl ₃	O ₂	0.12	CP/Ac-14	A = DMA; λ _{exc} = 710 nm.	83F222
	CHCl ₃	O ₂	0.12	CP/Ac-14	A = DMA; λ _{exc} = 710 nm.	83F222
	MeOD	O ₂	0.18	CP/Ac-14	A = DMA; λ _{exc} = 710 nm.	83F222
3.56	Diazene, 1-(4-acetylamino-5-hydroxy-2-methylphenyl)-2-phenyl-					
	CHCl ₃	air ^a	0.04	PL/LI-56	S' = MPDEE; rel. to Φ _Δ (S') = 0.77. P _T ^{O₂} = 1.	82F631
	EtOH	air ^a	0.05	CP/Oc-43	S' = MPDEE; A = H ₂ NCSNH ₂ ; rel. to Φ _Δ (S') = 0.77. Assumed P _T ^{O₂} = 1, P _S ^{O₂} = 0.	82F631
3.57	Diazene, 1-(2-bromo-6-cyano-4-nitrophenyl)-2-[2-(acetylamino)-4-[N-(2-cyanoethyl)-N-(2-hydroxyethyl)amino]-5-methoxyphenyl]-					
	Dibutyl terephthalate	air ^a	-0.0007	CP/Ac-43	A = TPCP; λ _{exc} = 589 nm. Rel. to Φ _Δ (TPP) = 0.74 and Φ _Δ (ZnTPP) = 0.79 in pyridine. Short lifetime indicates P _T ^{O₂} < 1.	81F609
3.58	Diazene, 1-(2-bromo-4,6-dinitrophenyl)-2-[2-(acetylamino)-4-[N-(2-cyanoethyl)-N-(2-hydroxyethyl)amino]-5-methoxyphenyl]-					
	Dibutyl terephthalate	air ^a	-0.0007	CP/Ac-43	A = TPCP; λ _{exc} = 589 nm. Rel. to Φ _Δ (TPP) = 0.74 and Φ _Δ (ZnTPP) = 0.79 in pyridine. Short lifetime indicates P _T ^{O₂} < 1.	81F609
3.59	Diazene, 1-(2-chloro-4,6-dinitrophenyl)-2-[2-(acetylamino)-4-[N-(2-cyanoethyl)-N-(2-hydroxyethyl)amino]-5-methoxyphenyl]-					
	Dibutyl terephthalate	air ^a	-0.0007	CP/Ac-43	A = TPCP; λ _{exc} = 589 nm. Rel. to Φ _Δ (TPP) = 0.74 and Φ _Δ (ZnTPP) = 0.79 in pyridine. Short lifetime indicates P _T ^{O₂} < 1.	81F609
3.60	Diazene, 1-(4,6-dinitrophenyl)-2-[2-(acetylamino)-4-[N-(2-cyanoethyl)-N-(2-hydroxyethyl)amino]-5-methoxyphenyl]-					
	Dibutyl terephthalate	air ^a	-0.0007	CP/Ac-43	A = TPCP; λ _{exc} = 589 nm. Rel. to Φ _Δ (TPP) = 0.74 and Φ _Δ (ZnTPP) = 0.79 in pyridine. Short lifetime indicates P _T ^{O₂} < 1.	81F609
3.61	Diazene, 1-(4-methylphenyl)-2-[1-(phenylaminocarbonyl)-2-oxopropyl]-					
	DMAA	air	<0.0022	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	DMF	air	<0.012	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 564 nm.	86F622
	DMF	air	<0.0021	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
3.62	Diazene, 1-phenyl-2-[1-(phenylaminocarbonyl)-2-oxopropyl]-					
	DMAA	air	<0.026	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	DMF	air	<0.024	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 564 nm.	86F622
	DMF	air	<0.023	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	2-PrOH	air	≤0.022	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
3.63	Dibenz[f,i,j]isoquinoline-2,7-dione, 3-methyl-6-(phenylamino)-					
	CHCl ₃	air ^a	0.008	PL/LI-56	S' = MPDEE; rel. to Φ _Δ (S') = 0.77. P _T ^{O₂} = 1.	82F631
	EtOH	air ^a	0.02	CP/Oc-43	S' = MPDEE; A = H ₂ NCSNH ₂ ; rel. to Φ _Δ (S') = 0.77. Assumed P _T ^{O₂} = 1, P _S ^{O₂} = 0.	82F631
3.64	Dibenzo[def,mno]chrysene-6,12-dione, 4,10-dibromo-					
	CCl ₄	air	0.75*	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
			0.85			
3.65	2,3:7,8-Dibenzopyrene-1,6-dione					
	C ₆ H ₄ (CH ₃) ₂	air ^a	0.77	PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90F577
	CH ₃ CN	air ^a	0.70	PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90F577

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.65	2,3:7,8-Dibenzopyrene-1,6-dione	—Continued				
	CCl ₄	air	0.7*	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
			0.8			
	EtOH	air ^a	0.63	PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90F577
	EtOH/C ₆ H ₆	O ₂	0.62	CP/Oc-27	A = Furan; λ _{exc} = 365 nm.	73F677
	D ₂ O	air ^a	-0.09	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Aggregates present.	90F577
	D ₂ O/EtOH (75:25)	air ^a	-0.1	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90F577
3.66	2,3:7,8-Dibenzopyrene-1,6-dione, 4,9-dibromo-					
	CCl ₄	air	0.84*	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
			0.95			
3.67	2,3:7,8-Dibenzopyrene-1,6-dione, 4,9-dichloro-					
	CDCl ₃	air	0.65	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
3.68	Dibromo(1,10-phenanthroline)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(phen)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.07. Obs. P by esr.	88A276
3.69	Dichloro(1,10-phenanthroline)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(phen)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.19. Obs. P by esr.	88A276
3.70	Dicyano(1,10-phenanthroline)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(phen)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.41. Obs. P by esr.	88A276
3.71	Dihematoporphyrin ester					
	D ₂ O	O ₂	0.4	PL/LI-56	S' = HP; rel. to Φ _Δ (S') = 0.4 ^b ; λ _{exc} = 355 nm.	86E061
	D ₂ O (mic)	O ₂	0.6	PL/LI-56	S' = HP; rel. to Φ _Δ (S') = 0.4 ^b ; λ _{exc} = 355 nm. Soln. cont. 0.01 mol L ⁻¹ CTAB.	86E061
	D ₂ O (mic)	air ^a	0.29	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; meas. φ _T (S) = 0.90; λ _{exc} = 347 nm. P _T ^{O₂} = 1; CTAB micelles; detd. mol. wt. of DHE of = 4200.	86F541 87R188
	MeOD	air ^a	0.30	PL/LI-56	S' = HP; rel. to Φ _Δ (S') = 0.64; λ _{exc} = 347 nm. Reported Φ _Δ = 0.25, using Φ _Δ (S') = 0.53; recalcd. using Φ _Δ (S') from [88Z155]; detd. mol. wt. of DHE of = 4200.	87R188
3.72	Dihematoporphyrin ester chlorin					
	D ₂ O (mic)	air ^a	0.23	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; meas. φ _T (S) = 1; λ _{exc} = 347 nm. Soln. cont. 10 ⁻² mol L ⁻¹ CTAB.	87R188 86F541
	MeOD	air ^a	0.30	PL/LI-56	S' = HP; rel. to Φ _Δ (S') = 0.64; meas. φ _T (S) = 0.85; λ _{exc} = 347 nm. Reported Φ _Δ = 0.25, using Φ _Δ (S') = 0.53; recalcd. using Φ _Δ (S') from [88Z155]; assumed mol. wt. = 1200.	87R188 86F541
3.73	Diiodo(1,10-phenanthroline)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(phen)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.04. Obs. P by esr.	88A276
3.74	3,4-Dimercaptotoluene(1,10-phenanthroline)palladium(II) Pd(phen)(DMT)					
	DMF	O ₂	-0.01	CP/Pa-43	S' = Pt(phen)(BCAT); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; rel. to Φ _Δ (S') = -0.15 ^b . Obs. P by esr.	89F181

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.75	Dinaphtho[2,3: <i>a</i> :2',3'- <i>i</i>]carbazole-4,9-diamine, <i>N,N'</i> -dibenzoyl-10,15,16,17-tetrahydro-5,10,15,17-tetraoxo-					
	CDCl ₃	air	0.2	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
3.76	4,7-Diphenyl-1,10-phenanthroline(2,3-naphthalenediolato)platinum(II) Pt(4,7-Ph ₂ phen)(dnt)	DMF	O ₂	CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dnt); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine <i>N</i> -oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.63. Obs. P by esr	91F203
3.77	Fulvic acids					
	H ₂ O pH = 4.1-8.6	air	0.014-0.093	CP/Ac-14	A = 2,5-DMF; λ _{exc} = 366 nm. In various natural waters.	777245
	H ₂ O pH = 3.5-10.5	O ₂	0.010-0.030	CP/Oc-14	A = FFA.	87F139
3.78	Hematoporphyrin derivative (Photofrin I)					
	D ₂ O	air ^a	0.25	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
	D ₂ O (mic)	air ^a	0.77	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. contg. 2% Triton X-100.	89E729
	D ₂ O (mic)	O ₂	0.35	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; λ _{exc} = 355 nm. Soln. cont. 10 ⁻² mol L ⁻¹ CTAB.	88R204
	EtOH	air ^a	0.77	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
	EtOH	air ^a	0.75	CP/Ac-14	A = DPBF; λ _{exc} = 620 nm. Assumed f _r ^A = 2.	76R193
	H ₂ O	air ^a	0.12	CP/Oc-14	A = FFA; λ _{exc} = 405 nm. Used f _r ^A = 1.23; Φ _Δ = 0.061, 0.037, 0.067 and 0.05 in soln. contg. 0.9% NaCl excited at 405, 436, 546, and 650 nm, resp.	85F332
	H ₂ O pH = 7.4	O ₂	0.06	CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.75; λ _{exc} = 546 nm. RNO as monitor of P.	85R008
	H ₂ O (mic) pH = 7.4	O ₂	0.87	CP/Ac-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.75; λ _{exc} = 546 nm. RNO as monitor of P; soln. cont. 0.23 mg/mL egg phosphatidylcholine.	85R008
	MeOH	air ^a	0.83	CP/Oc-14	A = FFA; λ _{exc} = 405 nm. Used f _r ^A = 1.52.	85F332
3.79	Hematoporphyrin dimers					
	D ₂ O	air ^a	0.11	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
	D ₂ O (mic)	air ^a	0.52	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. contg. 2% Triton X-100.	89E729
	EtOH	air ^a	0.60	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
	H ₂ O pH = 7.0	O ₂	0.29	CP/Pa-43	S' = RB; A = His; rel. to Φ _Δ (S') = 0.75. RNO as monitor of P.	89F580
3.80	Hematoporphyrin monomer:dimer:oligomer 2:3:9					
	H ₂ O pH = 7.0	O ₂	0.14	CP/Pa-43	S' = RB; A = His; rel. to Φ _Δ (S') = 0.75. RNO as monitor of P.	89F580
3.81	Hematoporphyrin monomer:dimer:oligomer 4:2:1					
	H ₂ O pH = 7.0	O ₂	0.40	CP/Pa-43	S' = RB; A = His; rel. to Φ _Δ (S') = 0.75. RNO as monitor of P.	89F580
3.82	Hematoporphyrin monomer:dimer:oligomer 5:3:4					
	H ₂ O pH = 7.0	O ₂	0.28	CP/Pa-43	S' = RB; A = His; rel. to Φ _Δ (S') = 0.75. RNO as monitor of P.	89F580
3.83	Hematoporphyrin oligomers					
	D ₂ O	air ^a	0.06	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
	D ₂ O (mic)	air ^a	0.49	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm. Soln. contg. 2% Triton X-100.	89E729
	EtOH	air ^a	0.31	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	89E729
3.84	Humic acids					
	H ₂ O pH = 7.2-8.0, 13.0	O ₂	0.005-0.026	CP/Ac-14	A = FFA; λ _{exc} = 366 nm.	84F269 87F139

Table 3, Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.85	Imidazole, 4,5-diphenyl-2-[(2-carboxy-5-methylphenyl)azo]-, cobalt(II) salt (Cobalt(II) Dye II)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye II; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.006.	88F568
3.86	Imidazole, 4,5-diphenyl-2-[(2-carboxy-5-methylphenyl)azo]-, cobalt(III) salt (Co(III) Dye II)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye II; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.006.	88F568
3.87	Imidazole, 4,5-diphenyl-2-[(2-carboxy-5-methylphenyl)azo]-, chromium(III) salt (Cr(III) Dye II)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye II; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 14.	88F568
3.88	Imidazole, 4,5-diphenyl-2-[(2-carboxy-5-methylphenyl)azo]-, copper(II) salt (Cu(II) Dye II)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye II; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 0.04.	88F568
3.89	Imidazole, 4,5-diphenyl-2-[(2-carboxy-5-methylphenyl)azo]-, iron(III) salt (Fe(III) Dye II)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye II; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 0.4.	88F568
3.90	Imidazole, 4,5-diphenyl-2-[(2-carboxy-5-methylphenyl)azo]-, nickel(II) salt (Ni(II) Dye II)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye II; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.006.	88F568
3.91	Imidazole, 4,5-diphenyl-2-[(2-hydroxy-5-nitrophenyl)azo]-, cobalt(II) salt (Cobalt(II) Dye III)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye III; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.0012.	88F568
3.92	Imidazole, 4,5-diphenyl-2-[(2-hydroxy-5-nitrophenyl)azo]-, cobalt(III) salt (Co(III) Dye III)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye III; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.0012.	88F568
3.93	Imidazole, 4,5-diphenyl-2-[(2-hydroxy-5-nitrophenyl)azo]-, copper(II) salt (Cu(II) Dye III)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye III; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 0.0029.	88F568
3.94	Imidazole, 4,5-diphenyl-2-[(2-hydroxy-5-nitrophenyl)azo]-, nickel(II) salt (Ni(II) Dye III)	DMF	air ^a	CP/Ac-43	S' = Zn(II) Dye III; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.0012.	88F568
3.95	Indolium, 2-[7-(4-bromo-1,3,3-trimethyl-2-indol-2-ylidene)-1,3,5-heptatrienyl]-1,3,3-trimethyl-, tetrafluoroborate	Propylene carbonate	O ₂	0.017 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.96	Indolium, 2-[7-(4-chloro-1,3,3-trimethyl-2-indol-2-ylidene)-1,3,5-heptatrienyl]-1,3,3-trimethyl-, tetrafluoroborate	Propylene carbonate	O ₂	0.012 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.97	Indolium, 2-[7-(4-iodo-1,3,3-trimethyl-2-indol-2-ylidene)-1,3,5-heptatrienyl]-1,3,3-trimethyl-, iodide	Propylene carbonate	O ₂	0.024 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.98	Indolium, 2-[7-(4-iodo-1,3,3-trimethyl-2-indol-2-ylidene)-1,3,5-heptatrienyl]-1,3,3-trimethyl-, tetrafluoroborate	Propylene carbonate	O ₂	0.02 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.99	Indolium, 2-[7-(1,3,3-trimethyl-2-indol-2-ylidene)-1-[4-(2,2-dimethoxyethyl)-1,3,5-heptatrienyl]-1,3,3-trimethyl-, tetrafluoroborate	Propylene carbonate	O ₂	0.011 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.100	Indolium, 2-[7-(1,3,3-trimethyl-2-indol-2-ylidene)-1-[4-(1-piperidinio)-1,3,5-heptatrienyl]-1,3,3-trimethyl-, bis(tetrafluoroborate)	Propylene carbonate	O ₂	0.022 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.101	Indolium, 2-[7-(1,3,3-trimethyl-2-indol-2-ylidene)-1-[4-[3-(1,3,3-trimethyl-2-indolylidene)-2-propenyl]-1,3,5-heptatrienyl]-1,3,3-trimethyl-, tetrafluoroborate	Propylene carbonate	O ₂	0.008 CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.102	Indol-3-one, 5-bromo-2-(9-chloro-3-oxonaphtho[1,2- <i>b</i>]thien-2-ylidene)-4-methyl-1,2-dihydro-	CDCl ₃	air	0.025 MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
3.103	Malachite Green cation	MeOH	O ₂	<0.002 CP/Ac-43	S' = RB; A = Bu ₂ S; rel. to Φ _Δ (S') = 0.80 ^b ; λ _{exc} = 546 nm. Measured P _T ^{Q₂} = 1.	80F304
3.104	Mesoporphyrin bound to poly(styrene-co-divinylbenzene)	CH ₂ Cl ₂	O ₂	0.34 CP/Ac-43	S' = MPDME; A = BRH ₂ ; rel. to Φ _Δ (S') = 0.57.	89F267

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.105	Mesoporphyrin di[4-(diphenylmethylaminocarbonyl-2-nitrophenylmethyl] ester bound to poly(styrene-co-divinylbenzene)	CH ₂ Cl ₂	O ₂	0.02- 0.03	CP/Ac-43 S' = MPDME; A = BRH ₂ ; rel. to Φ _Δ (S') = 0.57. (0.29 or 0.10) × 10 ⁻³ mol MP/g resin	89F267
3.106	Mesoporphyrin di[4-(diphenylmethylaminocarbonylphenylmethyl] ester bound to poly(styrene-co-divinylbenzene)	CH ₂ Cl ₂	O ₂	0.07	CP/Ac-43 S' = MPDME; A = BRH ₂ ; rel. to Φ _Δ (S') = 0.57.	89F267
3.107	Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(phenylamino)-1-naphthalenyl]methylen]-2,5-cyclohexadien-1-ylidene]-N-methyl-chloride	MeOH	O ₂	0.006	CP/Ac-43 S' = RB; A = Bu ₂ S; rel. to Φ _Δ (S') = 0.80 ^b ; λ _{exc} = 546 nm. Measured P _T ⁰ = 1.	80F304
3.108	2-Naphthacenecarboxamide, 4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-(Tetracycline)	D ₂ O pD = 7	air	0.026	PL/LI-56 S' = RF; rel. to Φ _Δ (S') = 0.30; λ _{exc} = 337 nm.	87F290
3.109	5,12-Naphthacenedione, 8-acetyl-10[(3-amino-2,3,6-trideoxy-hexopyranosyloxy)-tetrahydro-6,8,11-trihydroxy-1-methoxy-(Daunomycin)	D ₂ O pH = 7.4	O ₂	0.02	PL/LI-56,42 S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67. f _Δ ^T = ~0.1-1 depending on φ _T (S).	89B024
3.110	5,12-Naphthacenedione, 8-acetyl-7,8,9,10-tetrahydro-6,8,10,11-tetrahydroxy-1-methoxy- (S-cis) (Daunomycinone)	C ₆ H ₆	O ₂	0.03	PL/LI-56,42 S' = PPDME; rel. to Φ _Δ (S') = 0.55. f _Δ ^T = ~0.1 using meas. φ _T (S) = 0.038.	89B024
3.111	5,12-Naphthacenedione, 10-[(3-amino-2,3,6-trideoxy-α-L-lyxo-hexopyranosyloxy)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-8-(hydroxyacetyl)-1-methoxy- (Adriamycin)	D ₂ O pH = 7.4	O ₂	0.02	PL/LI-56,42 S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67. f _Δ ^T = ~0.1-1 depending on φ _T (S).	89B024
3.112	12-Naphthaceneone, 8-acetyl-10[(3-amino-2,3,6-trideoxyhexopyranosyloxy)-tetrahydro-6,7,11-trihydroxy-5-imino-1-methoxy-(5-iminodaunomycin)	D ₂ O pH = 7.4	O ₂	0.02	PL/LI-56,42 S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67. f _Δ ^T = ~0.1-1 depending on φ _T (S).	89B024
3.113	2-Naphthaleneacetic acid, 6-methoxy-α-methyl- (Naproxen)	H ₂ O pH = 2, 7	air	~0.2	CP/Oc-43 S' = BXP; A = 2,5-DMF; rel. to Φ _Δ (S') = 0.18.	88R012
3.114	2-Naphthalenecarboxamide, 4-[[4-(aminocarbonyl)phenyl]azo]-3-hydroxy-N-(2-methoxyphenyl)-	DMF	air	<0.0014	CP/Ac-43 S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 564 nm.	86F622
		DMF	air	<0.0036	CP/Ac-43 S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
3.115	2-Naphthalenecarboxamide, 3-hydroxy-4-[(4-methylphenyl)azo]-N-phenyl-	DMF	air	<0.0012	CP/Ac-43 S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 564 nm.	86F622
		DMF	air	<0.011	CP/Ac-43 S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
3.116	2,7-Naphthalenedisulfonic acid, 5-[[4-chloro-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-4-hydroxy-3-[(2-sulfophenyl)azo]-, trisodium salt	2-PrOH/ H ₂ O (10:1)	air	0.0054	CP/Ac-45 S' = RB; A = DMA; rel. to Φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.117	1-Naphthalenesulfonic acid, 3-[[4-chloro-6-(4-methyl-2-sulfophenyl)amino]-1,3,5-triazin-2-yl]amino-3-(5-sulfophenyl)azo]-, trisodium salt	2-PrOH/ H ₂ O (10:1)	air	0.0058	CP/Ac-45 S' = RB; A = DMA; rel. to Φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.118	1-Naphthalenesulfonic acid, 5-hydroxy-6-[[2-methoxy-5-[[2-(sulfoxyethyl)sulfonyl]phenyl]azo]-, disodium salt	2-PrOH/ H ₂ O (10:1)	air	0.0048	CP/Ac-45 S' = RB; A = DMA; rel. to Φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.119	6-Naphthalenesulfonate ion, 1,1'-methylenebis-	D ₂ O	air ^a	~0.4	PL/LI-56 S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.70; λ _{exc} = 337 nm.	90F577
3.120	1-Naphthol, 5-[[3-(aminosulfonyl)phenyl]sulfonyl]amino]-4-[2-(methylsulfonyl)-4-nitrophenylazo]-, conjugate base	DMF	air	0.0037	CP/Ac-14,A18 A = DPBF.	79F412
		H ₂ O	air	0.00013	CP/Ac-14,A18 A = 2,5-DMF.	79F412

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.120	1-Naphthol, 5-[3-(aminosulfonyl)phenyl]sulfonylamino]-4-[2-(methylsulfonyl)-4-nitrophenylazo]-, conjugate base—Continued					
	MeOH	air	0.0016	CP/Ac-14,A18	A = DPBF.	79F412
3.121	1-Naphthol, 5-methoxy-4-[2-(methylsulfonyl)-4-nitrophenyl]azo-, conjugate base					
	DMF	air	0.00027	CP/Ac-14,A18	A = DPBF.	79F412
3.122	2-Naphthol, 1-(2-hydroxyphenylazo)-, aluminum(III) salt (Al(III) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 370.	88F568
3.123	2-Naphthol, 1-(2-hydroxyphenylazo)-, chromium(III) salt (Cr(III) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 16.	88F568
3.124	2-Naphthol, 1-(2-hydroxyphenylazo)-, cobalt(II) salt (Co(II) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.07.	88F568
3.125	2-Naphthol, 1-(2-hydroxyphenylazo)-, cobalt(III) salt (Co(III) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.07.	88F568
3.126	2-Naphthol, 1-(2-hydroxyphenylazo)-, copper(II) salt (Cu(II) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.07.	88F568
3.127	2-Naphthol, 1-(2-hydroxyphenylazo)-, iron(III) salt (Fe(III) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 2.6.	88F568
3.128	2-Naphthol, 1-(2-hydroxyphenylazo)-, nickel(II) salt (Ni(II) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = <0.07.	88F568
3.129	2-Naphthol, 1-(2-hydroxyphenylazo)-, zinc(II) salt (Zn(II) Dye I)					
	DMF	air ^a		CP/Ac-43	S' = Cd(II) Dye I; A = DPBF; meas. Φ _Δ (S)/Φ _Δ (S') = 0.84.	88F568
3.130	2-Naphthol, 1-(4-methyl-2-nitrophenylazo)-					
	DMAA	air	<0.0031	CP/Ac-43	S' ~ RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	DMF	air	<0.0056	CP/Ac-43	S' ~ RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 564 nm.	86F622
	DMF	air	<0.013	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	2-PrOH	air	<0.0019	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
3.131	2-Naphthol, 1-(4-nitrophenylazo)-					
	DMAA	air	<0.0046	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	DMF	air	<0.0077	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
	DMF	air	<0.0051	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 564 nm.	86F622
	2-PrOH	air	≤0.0012	CP/Ac-43	S' = RB; A = DMA; rel. to Φ _Δ (S') = 1; λ _{exc} = 435 nm.	86F622
3.132	Naphtho[1,8- <i>bc</i>]thiopyran-3-one, 2-(1-oxonaphtho[2,1- <i>b</i>]thiophen-2-ylidene)-, (<i>E</i>)					
	CDCl ₃	air	0.6	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
3.133	1,8-Naphthyridine-3-carboxylic acid, 1,4-dihydro-1-ethyl-7-methyl-4-oxo- (Nalidixic acid)					
	D ₂ O pH = 4.4	air ^a	0.24	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; λ _{exc} = 347 nm. pK _a = 6.1; Φ _Δ decreases to 0.09 on addn. of eumelanin.	88R070
3.134	1,8-Naphthyridine-3-carboxylic acid, 1,4-dihydro-1-ethyl-7-methyl-4-oxo-, anion					
	D ₂ O pH = 8.9	air ^a	0.15	PL/LI-56	S' = H ₂ TPPS ⁴⁻ ; rel. to Φ _Δ (S') = 0.67; λ _{exc} = 347 nm.	88R070
3.135	2,2'-Oxatricarbocyanine, 3,3'-diethyl-, iodide					
	Propylene carbonate	O ₂	0.015	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.136	(1,10-Phenanthroline)bis(thiocyanato)platinum(II)					
	DMF	O ₂		CP/Pa-43	S' = Pt(phen)(N ₃) ₂ ; A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.15. Obs. P by esr.	88A276

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.137	1,10-Phenanthroline(2,3-naphthalenediolato)palladium(II) Pd(phen)(dnt)					
	DMF	O ₂		CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dhn); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.02. Obs. P by esr	91F203
3.138	1,10-Phenanthroline(2,3-naphthalenediolato)platinum(II) Pt(phen)(dnt)					
	DMF	O ₂		CP/Pa-43	S' = Pd(4,7-Ph ₂ phen)(dhn); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; meas. Φ _Δ (S)/Φ _Δ (S') = 0.13. Obs. P by esr	91F203
3.139	1,10-Phenanthroline(thiosalicylato)palladium(II) Pd(phen)(TSA)					
	DMF	O ₂	~0.03	CP/Pa-43	S' = Pt(phen)(BCAT); A = TEMP-4-OH; P = 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl; rel. to Φ _Δ (S') = ~0.15 ^b . Obs. P by esr.	89F181
3.140	1,10-Phenanthrolinetris(1-thienyl-4,4,4-trifluoro-1,3-butanedionato)europium(III) Eu(phen)(tta) ₃					
	CCl ₄	→ ∞	0.45	PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7; λ _{exc} = 347 nm.	91E314
3.141	Phenothiazine, 10-(1-azabicyclo[2.2.2]oct-3-ylmethyl)- (Mequitazine)					
	C ₆ H ₆	air	0.34* 0.28	PL/LI-56	S' = BP; rel. to Φ _Δ (S') = 0.29; λ _{exc} = 308 nm.	91F273
3.142	Phenothiazine, 2-chloro-10-dimethylaminopropyl- (Chlorpromazine)					
	C ₆ H ₆	air	0.33* 0.27	PL/LI-56	S' = BP; rel. to Φ _Δ (S') = 0.29; λ _{exc} = 308 nm.	91F273
3.143	12-(10'-Phenothiazinyl)dodecyl-1-sulfonate ion					
	H ₂ O (mic)	O ₂	0.095	CP/Oc-14	A = S; P = 12-(10'-Phenothiazinyl)dodecyl-1-sulfonate ion 9-sulfoxide.	85Z063
3.144	Photofrin II					
	H ₂ O pH = 7.4	O ₂	0.01	PL/Ac-14	A = TrpH; λ _{exc} = 630 nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
	H ₂ O pH = 7.4	O ₂	0.04	CP/Pa-43	S' = RB; A = Im; P = Imidazole endoperoxide; rel. to Φ _Δ (S') = 0.75; λ _{exc} = 540 nm. RNO as monitor for P.	88N170
	H ₂ O pH = 7.4	O ₂	0.13	CP/Oc-14	A = Im; λ _{exc} = 540 nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
	H ₂ O pH = 7.4	O ₂	0.09	CP/Ac-14	A = TrpH; λ _{exc} = 540 nm. Soln. cont. 1.6% NaCl in phosphate buffer.	88N170
3.145	Poly(sodium styrenesulfonate-co-2-vinylnaphthalene)					
	H ₂ O	O ₂	0.25	CP/Ac-14	A = C ₆ H ₅ CH=CH ₂ .	91F015
3.146	Pyran, 4-(dicyanomethylene)-6-(4-dimethylaminostyryl)-2-methyl-					
	CCl ₄	air ^a	0.0015	PL/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	90F568
3.147	8,16-Pyranthrenedione					
	CDCl ₃	air	0.8	MP/LI-56	S' = TPP; rel. to Φ _Δ (S') = 0.7.	85E863
3.148	Pyrazole-3-selone, 4-(aminomethylene)-2,4-dihydro-5-methyl-2-phenyl-, (Z)-					
	1-BuOH	air	0.16	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	c-C ₆ H ₁₂	air	0.11	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	CCl ₄	air	0.31	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	CDCl ₃	air	0.16	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	CH ₃ CN	air	0.16	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	CHCl ₃	air	0.14	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	EtOH	air	0.096	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	MeOH	air	0.13	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646
	MeOH-d ₃	air	0.13	CP/Ac-14	A = S; λ _{exc} = 366 nm. P _T ^{O₂} = 1.	85F646

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Table 3, Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	Method	Comment	Ref.
3.148	Pyrazole-3-selone, 4-(aminomethylene)-2,4-dihydro-5-methyl-2-phenyl-, (Z)—Continued					
	2-ProOH	air	0.12	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	diox	air	0.14	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
3.149	Pyrazole-3-thione, 4-(aminomethylene)-2,4-dihydro-5-methyl-2-phenyl-					
	1-BuOH	air	0.037	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	c-C ₆ H ₁₂	air	0.033	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	CCl ₄	air	0.15	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	CDCl ₃	air	0.062	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	CH ₃ CN	air	0.055	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	CHCl ₃	air	0.059	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	EtOH	air	0.037	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	MeOH	air	0.033	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	MeOH-d ₃	air	0.038	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	2-ProOH	air	0.030	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
	diox	air	0.071	CP/Ac-14	A = S; λ_{exc} = 366 nm. $P_T^{O_2}$ = 1.	85F646
3.150	Pyrazol-3-one, 2-(4-bromophenyl)-4-(4-diethylamino-2-methylphenyl)-2,4-dihydro-imino-5-methylcarbamyl-					
	CCl ₄	O ₂	0.0040	CP/Ac-14	A = 2M2P.	87F542
3.151	Pyrazol-3-one, 2-(4-chlorophenyl)-4-(4-diethylamino-2-methylphenyl)-2,4-dihydro-imino-5-methylcarbamyl-					
	CCl ₄	O ₂	0.0012	CP/Ac-14	A = 2M2P.	87F542
3.152	Pyrazol-3-one, 4-(4-diethylamino-2-methylphenyl)imino-2,4-dihydro-5-methylcarbamyl-2-(3-methoxyphenyl)-					
	CCl ₄	O ₂	0.0012	CP/Ac-14	A = 2M2P.	87F542
3.153	Pyrazol-3-one, 4-(4-diethylamino-2-methylphenyl)imino-2,4-dihydro-5-methylcarbamyl-2-(3-methylphenyl)-					
	CCl ₄	O ₂	0.0008	CP/Ac-14	A = 2M2P.	87F542
3.154	Pyrazol-3-one, 4-[[(4-diethylamino)-2-methylphenyl]imino]-2,4-dihydro-5-methyl-2-phenyl-					
	CCl ₄	O ₂	0.0026	CP/Ac-14	A = 2M2P.	87F542
3.155	Pyrazol-3-one, 4-(4-diethylamino-2-methylphenyl)imino-5-methylcarbamyl-2,4-dihydro-2-(2,4,6-trichlorophenyl)-					
	CCl ₄	O ₂	0.0016	CP/Ac-14	A = 2M2P.	87F542
3.156	Pyrazol-3-one, 4-[[(4-diethylamino)phenyl]imino]-2,4-dihydro-5-methyl-2-phenyl-					
	CCl ₄	O ₂	0.0027	CP/Ac-14	A = 2M2P.	87F542
3.157	Pyrazol-3-one, 4-[[(4-dimethylamino)phenyl]imino]-2,4-dihydro-5-methyl-2-phenyl-					
	CCl ₄	O ₂	0.0021	CP/Ac-14	A = 2M2P.	87F542
3.158	Pyrazolo[1',2':2,3][1,2,3]triazolo[4,5-a]phenazin-4-iium, 1,3-dimethyl-					
	c-C ₆ H ₁₂	air	0.21	CP/Ac-27	A = DPBF; λ_{exc} = 543 nm.	80F548
	CHCl ₃	air	0.037	CP/Ac-27	A = DPBF; λ_{exc} = 543 nm.	80F548
	CHCl ₃ /MeOH (8:2)	air	0.053	CP/Ac-27	A = DPBF; λ_{exc} = 543 nm.	80F548
3.159	Pyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)selenopyran-4-ylidene]-3-propenyl]-					
	MeOH	air	0.004	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.50$.	90F157 90R069 88A269
3.160	Pyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)telluropyran-4-ylidene]-3-propenyl]-					
	MeOH	air	0.05	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.50$.	90F157 90R069 88A269

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.161	Pyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)thiapyran-4-ylidene]-3-propenyl]-MeOH	air	0.0006	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90R069
3.162	Pyrylium, 4,4'-(1,3-propenyl)bis[2,6-di(1,1-dimethylethyl)-MeOH	air	0.0004	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157 90R069 88A269
3.163	4-Quinazolinone, 6-amino-2-(fluoromethyl)-3-(2-methylphenyl)- (Afloqualone)	C ₆ H ₆	air	0.17* 0.14	PL/LI-56 S' = BP; rel. to Φ _Δ (S') = 0.29; λ _{exc} = 308 nm.	91F273
3.164	Remazol Brilliant Red 5B	2-PrOH/H ₂ O (10:1)	air	0.0068	CP/Ac-45 S' = RB; A = DMA; rel. to Φ _Δ (S') = 0.5; λ _{exc} = 546 nm.	79F662
3.165	Rhodamine B cation	MeOH	O ₂	0.016	CP/Ac-43 S' = RB; A = Bu ₂ S; rel. to Φ _Δ (S') = 0.80 ^b ; λ _{exc} = 546 nm. Measured P _T ^{O₂} = 1.	80F304
3.166	Rhodamine 6G cation	C ₅ H ₅ N	O ₂	0.12	CP/Oc-14 A = H ₂ NCSNH ₂ . Assumed f _r ^A = 2.	737347 74E522
3.167	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene)	CH ₂ Cl ₂	O ₂	0.76- 0.91	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol; amount of bound dye varied, 9-284 mg RB/g polymer.	86P106
3.168	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), ammonium salt	CH ₂ Cl ₂	O ₂	0.27	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106
3.169	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), sec-butylammonium salt	CH ₂ Cl ₂	O ₂	0.55	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106
3.170	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), tert-butylammonium salt	CH ₂ Cl ₂	O ₂	0.64	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106
3.171	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), diethylammonium salt	CH ₂ Cl ₂	O ₂	0.86	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106
3.172	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), isobutylammonium salt	CH ₂ Cl ₂	O ₂	0.50	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106
3.173	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), piperidinium salt	CH ₂ Cl ₂	O ₂	0.74	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106
3.174	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), pyridinium salt	CH ₂ Cl ₂	O ₂	0.35	CP/Pa-43 S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to Φ _Δ (S') = 0.76; λ _{exc} = 556 nm. Rel. to S' in methanol.	86P106

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	Method	Comment	Ref.
3.175	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), tributylammonium salt					
	CH ₂ Cl ₂	O ₂	0.66	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol.	86P106
3.176	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), triethylammonium salt					
	CH ₂ Cl ₂	O ₂	0.78	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol.	86P106
3.177	Rose Bengal bound to chloromethylated poly(styrene-co-divinylbenzene), trimethylammonium salt					
	CH ₂ Cl ₂	O ₂	0.46	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol.	86P106
3.178	Rose Bengal bound to poly(styrene-co-vinylbenzyl chloride)					
	CH ₂ Cl ₂	O ₂	0.16-0.36	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol; bound dye varied 51-610 mg RB/1.07 g polymer.	85F171 85F436
	MeOH (dis)	O ₂	0.04-0.41	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol; bound dye varied 51-610 mg RB/1.07 g polymer.	85F436
3.179	Rose Bengal bound to poly(styrene-co-vinylbenzyl chloride), pyridinium salt					
	CH ₂ Cl ₂	O ₂	0.41	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol.	86P106
3.180	Rose Bengal bound to poly(styrene-co-vinylbenzyl chloride), triethylammonium salt					
	CH ₂ Cl ₂	O ₂	0.61	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 556$ nm. Rel. to S' in methanol.	86P106
3.181	Rose Bengal on Sephadex A resin					
	MeOH	O ₂	0.55	CP/Ac or Oc-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; rel. to $\phi_{\Delta}(S') = 0.76$.	86F510
3.182	Rose Bengal polyglycol					
	C ₆ H ₅ CH ₃	air ^a	0.30	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 559$ nm. Rel. to S' in methanol.	86F463
	C ₆ H ₆	air ^a	0.40	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 559$ nm. Rel. to S' in methanol.	86F463
	CH ₂ Br ₂	air ^a	0.81	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 559$ nm. Rel. to S' in methanol.	86F463
	CH ₂ Cl ₂	air ^a	0.76	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 559$ nm. Rel. to S' in methanol.	86F463
	EtOH	air ^a	0.75	CP/Pa-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; P = 1,2-Ethanediol dibenzoate; rel. to $\phi_{\Delta}(S') = 0.76$; $\lambda_{exc} = 559$ nm. Rel. to S' in methanol.	86F463
3.183	Safranine cation					
	MeOH	O ₂	0.14	CP/Ac-43	S' = RB; A = Bu ₂ S; rel. to $\phi_{\Delta}(S') = 0.80^b$; $\lambda_{exc} = 546$ nm. Measured $P_1^{O_2} = 1$.	80F304
3.184	Selenopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)-1,1-dihydroxytelluropyran-4-ylidene]-3-propenyl]-H ₂ O/CH ₃ OH (9:1)	air	≤0.004	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.50$.	90F157

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	Φ _Δ	Method	Comment	Ref.
3.185	Selenopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[2-[2,6-bis(1,1-dimethylethyl)selenopyran-4-ylidene]-4-(2-butenyl)]-MeOH	air	0.004	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157
3.186	Selenopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[2-[2,6-bis(1,1-dimethylethyl)selenopyran-4-ylidene]-4-(2-pentenyl)]-MeOH	air	0.001	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157
3.187	Selenopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)selenopyran-4-ylidene]-3-propenyl]-MeOH	air	0.013	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50. Φ _Δ same in air- or oxygen-satd. methanol.	90F157 90R069
3.188	Selenopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)telluropyran-4-ylidene]-3-propenyl]-MeOH	air	0.09	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50. f _Δ ^T = 0.75 using Φ _T (S) = 0.12 but P _S ^{O₂} < 1.	90F157 90R069 88A269
3.189	Sensitox HP resin					
	MeOH	O ₂	0.25	CP/Oc-43	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; rel. to Φ _Δ (S') = 0.76.	86F510
3.190	Sensitox P resin					
	MeOH	O ₂	0.23	CP/Ac-43;	S' = RB; A = 2,3-Diphenyl-1,4-dioxene; rel. to Φ _Δ (S') = 0.76.	86F510
			0.22	CP/Oc-43		
3.191	Telluropyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)telluropyran-4-ylidene]ethyl]-MeOH	air	0.006	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157
3.192	Telluropyrylium, 2,6-bis(1,1-dimethylethyl)-4-[2,6-bis(1,1-dimethylethyl)telluropyran-4-ylidene]methyl]-MeOH	air	0.07	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157
3.193	Telluropyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)telluropyran-4-ylidene]-3-propenyl]-MeOH	air	0.12	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50. f _Δ ^T = 0.67 using Φ _T (S) = 0.18 but P _S ^{O₂} < 1.	90F157 90R069 88A269
3.194	2,2'-Thiatricarbocyanine, 3,3'-diethyl-, iodide					
	Propylene carbonate	O ₂	0.025	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.195	Thiopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)selenopyran-4-ylidene]-3-propenyl]-MeOH	air	0.007	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157 90R069
3.196	Thiopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)telluropyran-4-ylidene]-3-propenyl]-MeOH	air	0.07	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157 90R069
3.197	Thiopyrylium, 2,6-bis(1,1-dimethylethyl)-4-[1-[2,6-bis(1,1-dimethylethyl)thiopyran-4-ylidene]-3-propenyl]-MeOH	air	0.0006	CP/Ac-43 or 14	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.50.	90F157 90R069
3.198	Tricarbocyanine, 5,5'-dichloro-1,1',3,3,3',3'-hexamethyl-, iodide					
	Propylene carbonate	O ₂	0.02	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.199	Tricarbocyanine, 5,5'-difluoro-1,1',3,3,3',3'-hexamethyl-, iodide					
	Propylene carbonate	O ₂	0.014	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.200	Tricarbocyanine, 5,5'-dimethoxy-1,1',3,3,3',3'-hexamethyl-, iodide					
	Propylene carbonate	O ₂	0.004	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690
3.201	Tricarbocyanine, 1,1',3,3,3',3'-hexamethyl-, fluoride					
	Propylene carbonate	O ₂	0.013	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to Φ _Δ (S') = 0.35; λ _{exc} = 633 nm.	87E690

Table 3. Quantum yields of photosensitized production of singlet oxygen, from drugs, dyes, polymers, etc.—Continued

No.	Solvent	[O ₂]	ϕ_{Δ}	Method	Comment	Ref.
3.202	Tricarbocyanine, 1,1',3,3,3',3'-hexamethyl-, iodide					
	Propylene carbonate	O ₂	0.015	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.203	Tricarbocyanine, 1,1',3,3,3',3'-hexamethyl-, perchlorate					
	Propylene carbonate	O ₂	0.015	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.204	Tricarbocyanine, 1,1',3,3,3',3',5,5'-octamethyl-, iodide					
	Propylene carbonate	O ₂	0.015	CL/Ac-47	S' = MB ⁺ ; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.35$; $\lambda_{exc} = 633$ nm.	87E690
3.205	Tris(2,2'-bipyridine)ruthenium(II) ion bound to Dowex 50W-X1 resin					
	MeOH	O ₂	0.90	CL/Pa-14	A = TME; $\lambda_{exc} = 488$ nm.	83N166
3.206	Tris(1,10-phenanthroline)ruthenium(II) ion bound to Dowex 50W-X1 resin					
	MeOH	O ₂	0.68	CL/Pa-14	A = TME; $\lambda_{exc} = 488$ nm.	83N166
3.207	Xanthen-3-one, 9-(2-carboxyethyl)-6-hydroxy-2,4,5,7-tetraiodo-, dianion, bound as copoly(styrene-p-vinylbenzyl ester)					
	DMF	air ^a	0.34	CP/Ac-43	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618
3.208	Xanthen-3-one, 9-(2-carboxyethyl)-6-hydroxy-2,4,5-triiodo-, dianion, bound as copoly(styrene-p-vinylbenzyl ester)					
	DMF	air ^a	0.33	CP/Ac-43	S' = RB; A = DPBF; rel. to $\phi_{\Delta}(S') = 0.76$.	88F618

^a Oxygen concentration not given; assumed to be air saturated.^b Value of $\phi_{\Delta}(S')$ used in this work to calculate $\phi_{\Delta}(S)$ from authors' reported $\phi_{\Delta}(S)/\phi_{\Delta}(S')$.* Values recalculated using $\phi_{\Delta}(S')$ or $f_{\Delta}^T(S')$ from Table 4 or from the quoted reference.